

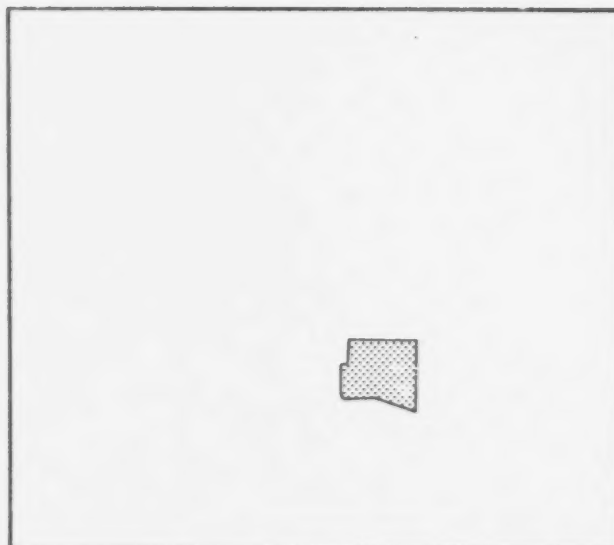
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FLOOD INSURANCE STUDY



**PUEBLO COUNTY,
COLORADO**
UNINCORPORATED AREAS



SEPTEMBER 29, 1989

Federal Emergency Management Agency

COMMUNITY NUMBER - 080147

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study may not contain all the data available within the repository. Please contact the community repository for any additional data.

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Wild Horse-Dry Creek	Panels 21P-22P
Goodnight Arroyo	Panels 23P-24P
Dry Creek	Panel 25P

Exhibit 2 - Flood Insurance Rate Map Index
Flood Insurance Rate Map

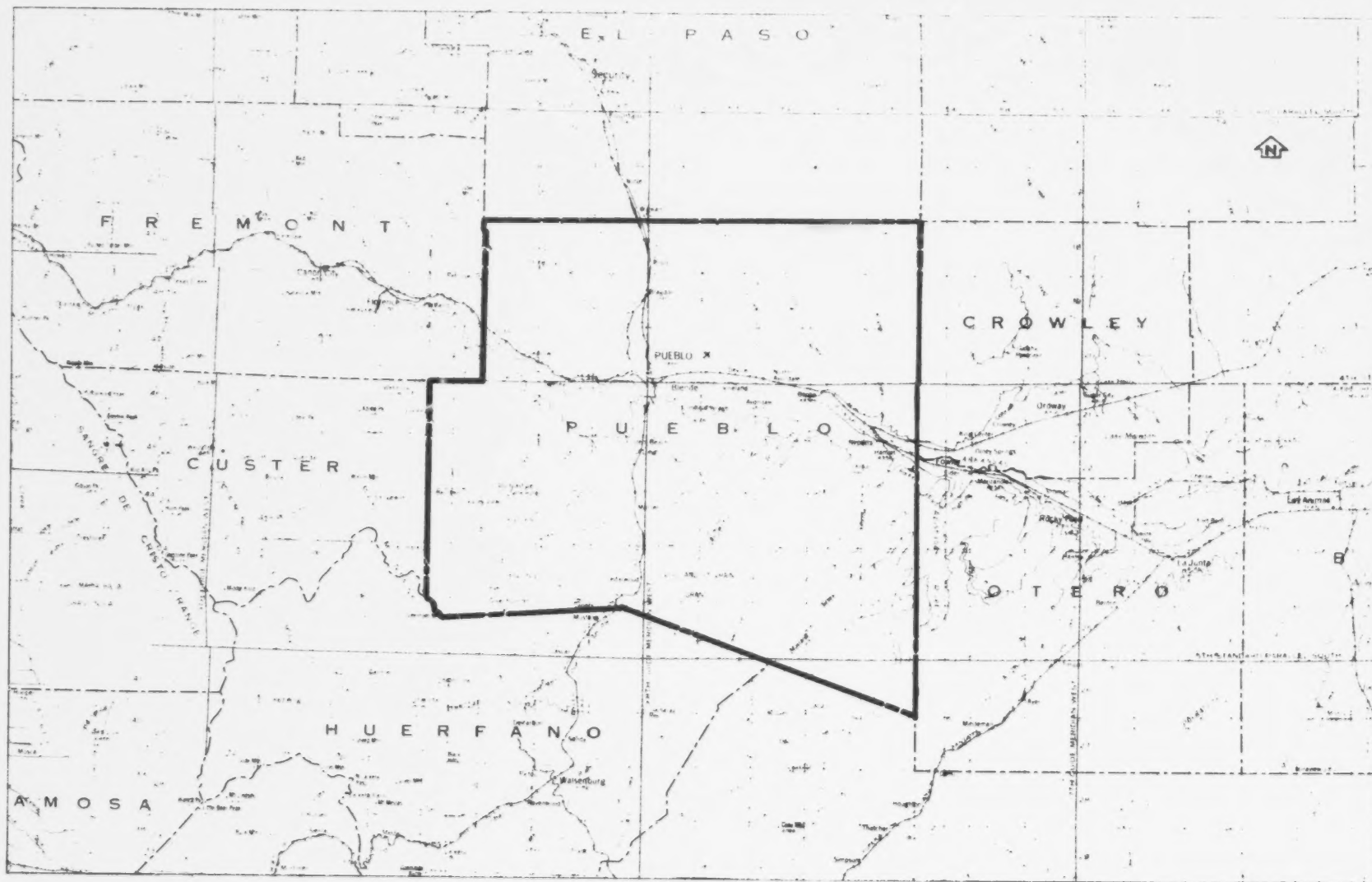


FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
(UNINCORPORATED AREAS)

APPROXIMATE SCALE

16 0 16 32 48 MILES

VICINITY MAP

FLOOD INSURANCE STUDY
PUEBLO COUNTY, COLORADO (UNINCORPORATED AREAS)

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in the unincorporated areas of Pueblo County, Colorado, and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study will be used to establish actuarial flood insurance rates and assist the community in their efforts to promote sound floodplain management. Minimum floodplain management requirements for participation in the National Flood Insurance Program (NFIP) are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

This Flood Insurance Study was prepared by compiling pertinent information for the flood hazard areas in Pueblo County from existing technical and/or scientific data originally prepared by others.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than those on which these Federally-supported studies are based. In such cases, the more restrictive criteria take precedence and the State (or other jurisdictional agency will be able to explain them).

1.2 Authority and Acknowledgments

The sources of authority for this Flood Insurance Study are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses used to prepare this study were performed by the U.S. Army Corps of Engineers (COE), Albuquerque District (References 1, 2, 3, 4, and 5).

1.3 Coordination

On August 7, 1987, the Federal Emergency Management Agency (FEMA) notified Pueblo County that a Flood Insurance Study was being prepared for the community.

On December 15, 1988, the results of this study were reviewed and accepted at a final coordination meeting attended by representatives of the community and FEMA.

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the unincorporated areas of Pueblo County, Colorado. The areas of study are shown on the Vicinity Map (Figure 1).

The areas studied by detailed methods were selected based on the extent and validity of available existing hydrologic and hydraulic data.

The following streams were studied by detailed methods:

St. Charles River - From its confluence with the Arkansas River approximately 8.0 miles east of the City of Pueblo to the Stinking Arroyo confluence, a reach of approximately 27.0 miles (Reference 1).

Salt Creek - From its confluence with the Arkansas River in the southeast corner of the City of Pueblo to the St. Charles Flood Ditch, a reach of approximately 13.4 miles (Reference 3).

Sixmile Creek - From its confluence with the Arkansas River 12.0 miles east of the City of Pueblo to the crossing of the Bessemer Ditch, a reach of approximately 6.3 miles (Reference 4).

Wild Horse-Dry Creek - From the Arkansas River confluence to a point on Dry Creek just past the confluence of Wild Horse Creek, a reach of approximately 5.7 miles (Reference 5).

Dry Creek - From the mouth at the Arkansas River to a point on the stream approximately 1.6 miles north of the U.S. Highway 50 Bypass bridge, a reach of approximately 3.2 miles (Reference 5).

Goodnight Arroyo - From the confluence with the Arkansas River on the west side of the City of Pueblo to a point just upstream of the confluence of the short and long branches, a reach of approximately 2.5 miles (Reference 5).

Fountain Creek was studied by approximate methods from its confluence with the Arkansas River to the Pueblo County line, a reach of approximately 21.5 miles. The portion of the reach within the corporate limits of the City of Pueblo is not shown (Reference 2).

2.2 Community Description

Pueblo County, Colorado, encompasses 2,414 square miles and is located in the southeastern part of the state. It is termed a "front range" county because of its location in a population concentration and growth corridor which extends along the eastern edge of the Rocky Mountains. Pueblo County begins approximately 90 miles south of Denver and 20 miles south of Colorado Springs. Pueblo County contains three physiographic regions (from west to east): mountains, foothills, and plains. Western Pueblo County is in the Wet Mountain range of the Colorado Rocky Mountains. Greenhorn Peak, rising to an elevation of 12,349 feet, is the highest feature in the county. The foothills represent a transition area between the mountains and the plains, and contain the Town of Rye and the unincorporated communities of Beulah and Colorado City.

The plains constitute approximately two-thirds of the county, with a gentle west-to-east dip from 5,300 feet to 4,300 feet in elevation. The City of Pueblo; Town of Boone; the unincorporated communities of Pueblo West, Blende, Salt Creek, and Avondale; and the areas known locally as the St. Charles Mesh and Vineland, are all located on the plains (Reference 8).

The St. Charles River originates near San Isabel, Colorado, on the northeast face of the Wet Mountains. It covers a stream distance of approximately 50 miles before its confluence with the Arkansas River. In the study reach, the river has eroded into shale and limestone strata deposits during the Cretaceous Age to form a narrow, entrenched valley within surrounding high plains. This valley is bordered by bluffs that seldom exceed 30 feet in height. Valley widths range from approximately 1,200 feet in the upper study reach to 3,000 feet near the river's mouth, with some isolated segments narrowing to as little as 600 feet.

Approximately 67 square miles of the upper watershed is above 9,000 feet in elevation. Greenhorn Mountain and St. Charles Peak, at elevations of 12,349 and 11,738 feet, respectively, are in this region. The streambed elevation at the mouth is approximately 4,545 feet. Stream slopes are relatively steep, averaging approximately 20 feet per mile through the study reach. The total watershed covers an area of 482 square miles.

The study reach lies primarily in the lower short-grass plain zone where native blue grama and galleta grasses with some rabbit brush are found. Cottonwood, willow, and tamarisk (salt cedar) are the predominant trees growing along the channel banks. The upper watershed vegetation consists of mixed conifers, such as pine, fir, and spruce, and typically contain grasses including side-oats grama, needle, Arizona fesque, and mountain muley.

The river is a typical perennial mountain stream sustained by runoff from snowmelt and rainfall in the late fall, winter, and early spring. Runoff increases and flooding occurs during the summer months in conjunction with increased thunderstorm activities. The average annual precipitation varies from about 12 inches at the mouth of the stream to 24 inches in the upper elevations of the watershed.

In recent years, urbanization has gradually expanded into the lower valley to occupy some floodplain lands that were formerly used for agriculture purposes. Most of the new construction, primarily residential, is located in the vicinity of Ford Lane, U.S. Highway 50, or 27th Lane. This development is gaining momentum, but agriculture and stock-grazing activities remain dominant (Reference 1).

The Fountain Creek watershed is approximately 65 miles long and a maximum of 25 miles wide. The total drainage area is approximately

927 square miles. Elevations in the watershed vary from 4,627 feet at the mouth to 14,109 feet at Pike's Peak. Fountain Creek is perennial except for a few days during the summer when irrigation and municipal demands equal or exceed the low summer flows.

Some irrigation-return flows are experienced in the plains sector of the creek (Reference 3).

Salt Creek is one of several floodprone tributaries which flow into the Arkansas River between Canon City and the City of Pueblo. The Salt Creek Basin is adjacent to the Goodnight Arroyo Basin to the northwest and St. Charles River Basin to the southeast.

The Salt Creek watershed encompasses 37.2 square miles. The headwaters originate in the foothills approximately 8 miles south and 10 miles west of the city. The Salt Creek Basin is minor in regard to size but is important to the City of Pueblo in that it flows through the residential and major industrial areas of southeast Pueblo.

At its confluence with the St. Charles River Flood Ditch, a maximum flow of approximately 635 cubic feet per second (cfs) is diverted into Salt Creek from the St. Charles River. This flow is for irrigation purposes and provides a base flow in Salt Creek during the spring and summer months.

Three miles downstream from the flood ditch, the creek flows into the first of two major reservoirs along its course. The upstream reservoir is called St. Charles Reservoir No. 2. Only Reservoir No. 3 is effective in substantially reducing floodflows from the creek (Reference 3).

The Sixmile Creek Basin is adjacent to the St. Charles River Basin to the west and the Huerfano River Basin to the east. The watershed encompasses 53.3 square miles with the headwaters originating in the low hills about 15 miles south and 3 miles east of the City of Pueblo. The entire stream is approximately 24.9 miles long. The reach of the stream above the Bessemer Ditch crossing may be considered to be intermittent.

The terrain in the study reach is typical of the southeastern plains of Colorado, being flat to rolling, semi-arid, and sparsely vegetated (Reference 4).

The Wild Horse-Dry Creek watershed, approximately 17 miles long and averaging 5 miles wide, has a drainage area of 82.8 square miles. Within the roughly rectangular watershed, elevations vary from 6,000 feet near the headwaters to 4,700 feet at the mouth.

Wild Horse-Dry Creek begins as two separate streams, Wild Horse Creek and Dry Creek. These streams originate in the foothills of the frontal range northwest of the City of Pueblo and flow in a southeasterly direction to join near the Wild Horse subdivision

community located approximately two miles northwest of the city. Below this junction point, the combined Wild Horse-Dry Creek stream channel passes under the City of Pueblo's northwest residential area before draining into the Arkansas River.

The headwaters are fed from snowmelt and rainfall runoff during late fall, winter, and early spring. During the summer months, the flows are the result of thunderstorms or general rains over the entire watershed.

The scrub vegetation growing in the higher elevations is typical of southern Colorado's foothill regions where fairly rough, broken terrain usually prevails. At lower elevations, the creeks traverse high plains covered with sparse vegetation of semi-arid type. Sage brush, cactus, and native grass dominate this area.

The average slope in the watershed is approximately 60 feet per mile and, within the study reach, 37 feet per mile. Streambed elevations vary from approximately 4,670 feet at the mouth to 4,877 feet at the upper limit of the study reach (Reference 5).

The banana-shaped watershed of Dry Creek spans a distance of 5.5 miles from the mouth to the headwaters with a maximum width of 1.3 miles. The drainage area is 5.4 square miles. Elevations in the watershed vary from 5,265 feet at the headwaters to 4,608 feet at the Arkansas River confluence.

An ephemeral stream, Dry Creek originates at the southern extremity of Baculite Mesa in the high plains northeast of Pueblo and flows southerly to discharge into the Arkansas River within the City of Pueblo. The creek flows are the result of snowmelt and rainfall runoff during the winter and early spring. During the summer months, the flows result from thunderstorms or general rains over the entire watershed.

The rolling high plains terrain is fairly rough, broken and sparsely vegetated. The vegetation consists of sage brush, cactus, and native grass, typical of the semi-arid high plains region.

Floods in the study reach normally originate from runoff of the entire watershed due to limited areal extent of the drainage. The steep slopes and long narrow shape of the drainage are conducive to fast rises and high peak flows of short duration. The average slope of the watershed is approximately 114 feet per mile. Within the study reach, the average slope is only 49 feet per mile (Reference 5).

Goodnight Arroyo originates on the high plains southwest of the City of Pueblo. The triangular-shaped watershed spans a distance of 4.9 miles from the headwaters to the mouth. It has a maximum width of 2.9 miles and drainage area of 5.9 square miles. Elevations in the watershed vary from 5,330 feet at the headwaters to 4,708 feet at the Arkansas River confluence.

The rolling high plains terrain is fairly rough, broken, and sparsely vegetated. The predominant vegetation for this semi-arid high plains region is sage brush, cactus, and native grass.

Flows in the arroyo are the result of snowmelt and rainfall runoff during the winter and early spring. During the summer months, the flows result from thunderstorms or general rains over the entire watershed.

Floods in the study reach normally originate from runoff of the entire watershed due to the extent of the drainage. The steep slopes and long narrow shape of the drainage are conducive to fast rises and high peak flows of short duration. The average slope is approximately 109 feet per mile in the watershed, and only 63 feet per mile within the study reach. Streambed elevations within the study reach vary from approximately 4,708 feet at the mouth to 4,868 feet at the upstream limit of study (Reference 5).

The rural areas of Pueblo are dominated by irrigated and dry land used for farming and ranching. Natural resource activities are currently focused on sand, gravel, and clay extraction, with the potential for limestone extraction.

According to the 1980 U.S. Census, the total population of Pueblo County in 1980 was 125,972 compared to a population of 118,238 in 1970. The City of Pueblo, the county seat, is by far the largest city in Pueblo County, having a population of 101,686 in 1980 (Reference 6).

The climate in central and eastern Pueblo County is semi-arid with an average annual precipitation of about 12 inches. The vegetation is predominantly sage brush, cactus, and native grass which is typical of the semi-arid high plains. The more mountainous southwestern region has an average annual precipitation of 20 to 24 inches. The vegetation includes pine, fir, and spruce trees along with typical mountain grasses (Reference 1).

2.3 Principal Flood Problems

Analysis of climatological data and inspection of the flood history show that the most severe flood-producing storms occur during the late spring or summer months. The spring season is the transitional period between the occurrence of instability and frontal activity and is subject to storms caused by both types of activities. This may result in heavy spring snow storms in the higher elevations or high intensity rains over the plains region. These storms and the physical features of the area can produce the rapid concentration of runoff that characterizes flash floods of high peak flows, small volumes, and short duration (References 1, 2, 3, 4, and 5).

2.4 Flood Protection Measures

Both structural flood protection works and nonstructural flood damage reduction measures have been employed in Pueblo's continuing effort to prevent or reduce recurring flood losses.

The U.S. Bureau of Reclamation constructed Pueblo Dam on the Arkansas River at River Mile 1,293.7, approximately 6 miles upstream from the City of Pueblo. The dam controls Arkansas River flows up to 87,000 cfs, approximately an 800-year flood (Reference 9).

The county has also established zoning laws to regulate construction in floodprone areas.

3.0 ENGINEERING METHODS

For the following sources studied by detailed methods in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude which are expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100, 500-year floods, have a 10-, 2-, 1-, and 0.2-percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long-term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than one year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (1-percent chance of annual exceedence) in any 50-year period is approximately 40 percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for each flooding source studied by detailed methods affecting the community.

For the St. Charles River, Fountain Creek, Wild Horse-Dry Creek, and Goodnight Arroyo, the 100-year floods were determined from analyses of past floods that have occurred on the respective streams and other streams in their general area. This flood information was obtained from historical documents and newspaper files.

Since historical flood information on Salt Creek and Sixmile Creek is very limited, the magnitude of the 100-year flood for these streams was determined by a regional flow frequency, analysis from which peak frequency curves were developed.

Peak discharge-drainage area relationships for the Arkansas River, St. Charles River, Fountain Creek, Sixmile Creek, Salt Creek, Wild Horse-Dry Creek, Dry Creek, and Goodnight Arroyo are shown in Table 1.

TABLE 1 - SUMMARY OF DISCHARGES

<u>FLOODING SOURCE AND LOCATION</u>	<u>DRAINAGE AREA (SQ MILES)</u>	<u>PEAK DISCHARGE (cubic feet per second) 100-YEAR</u>
St. Charles River		
At the confluence with Greenhorn River	421	42,600
At river mouth	482	58,000
Salt Creek	N/A	9,182
Sixmile Creek	N/A	19,379
Wild Horse-Dry Creek		
D. & R.G.W. Railroad Bridge	82.8	19,600
.75 mile below U.S. Highway 50	69.6	19,000
Dry Creek		
At the mouth	5.4	2,900
About .10 mile upstream of U.S. Highway 50 Bypass	4.1	2,750
Goodnight Arroyo		
At the mouth	5.9	3,100
.40 mile upstream of Red Creek Road	5.1	3,000

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the riverine sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals.

The profiles for the St. Charles River, Fountain Creek, Wild Horse-Dry Creek, Dry Creek, and Goodnight Arroyo were computed by stream characteristics, topographic maps and valley cross sections. The cross sections for the St. Charles River and Fountain Creek were surveyed in August 1969 and August 1967, respectively.

For Salt Creek and Sixmile Creek, channel cross sections, topographic maps and aerial photographs were used to determine stream characteristics needed to compute and define the flood situation.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1).

Flood profiles were drawn showing the computed water-surface elevations for floods of the selected recurrence intervals.

The hydraulic analyses for this study are based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

All elevations are referenced to the National Geodetic Vertical Datum (NGVD) of 1929. Elevation reference marks used in this study are shown on the maps.

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. Therefore, each Flood Insurance Study includes a flood boundary map designed to assist communities in developing sound floodplain management measures.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. For each stream studied by detailed methods, the boundaries of the 100-year floodplain boundaries have been delineated using the flood elevations determined at each cross section.

Between cross sections the boundaries were interpolated using topographic maps and aerial photographs.

Approximate areas of flooding were plotted directly from Flood Hazard Boundary Maps (Reference 7).

The 100-year floodplain boundaries are shown on the Flood Insurance Rate Map (Exhibit 2). On this map, the 100-year floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A and AE). Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

For the streams studied by approximate methods, only the 100-year floodplain boundary is shown on the Flood Insurance Rate Map (Exhibit 2).

4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the NFIP, a floodway is used as a tool to assist local communities in this aspect of floodplain management.

Floodways were not computed for this study.

5.0 INSURANCE APPLICATION

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. These zones are as follows:

Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains determined in the Flood Insurance Study by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 100-year floodplains determined in the Flood Insurance Study by detailed methods. In most instances, whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 500-year floodplain, areas within 500-year floodplain, areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year flood by levees. No base flood elevations or depths are shown within this zone.

6.0 FLOOD INSURANCE RATE MAP

The Flood Insurance Rate Map is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 100-year floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 100-year floodplain and the locations of selected cross sections used in the hydraulic analysis.

7.0 OTHER STUDIES

This Flood Insurance Study was prepared by compiling existing hydrologic and hydraulic technical and scientific data prepared by other organizations originally for purposes other than those of the NFIP. The data were identified as the best available at the time of compilation of this FIS and should depict the general conditions of the flooding sources with relative accuracy. FEMA performed a cursory review and accepted the data as valid for purposes of this FIS and the NFIP. However, if better information is known to exist or has been developed since the date of this report, the information should be immediately forwarded to the Natural and Technological Hazards Division, FEMA, Denver Federal Center, Building 710, Box 25267, Denver, Colorado 80225-0267 for consideration for revision of this study.

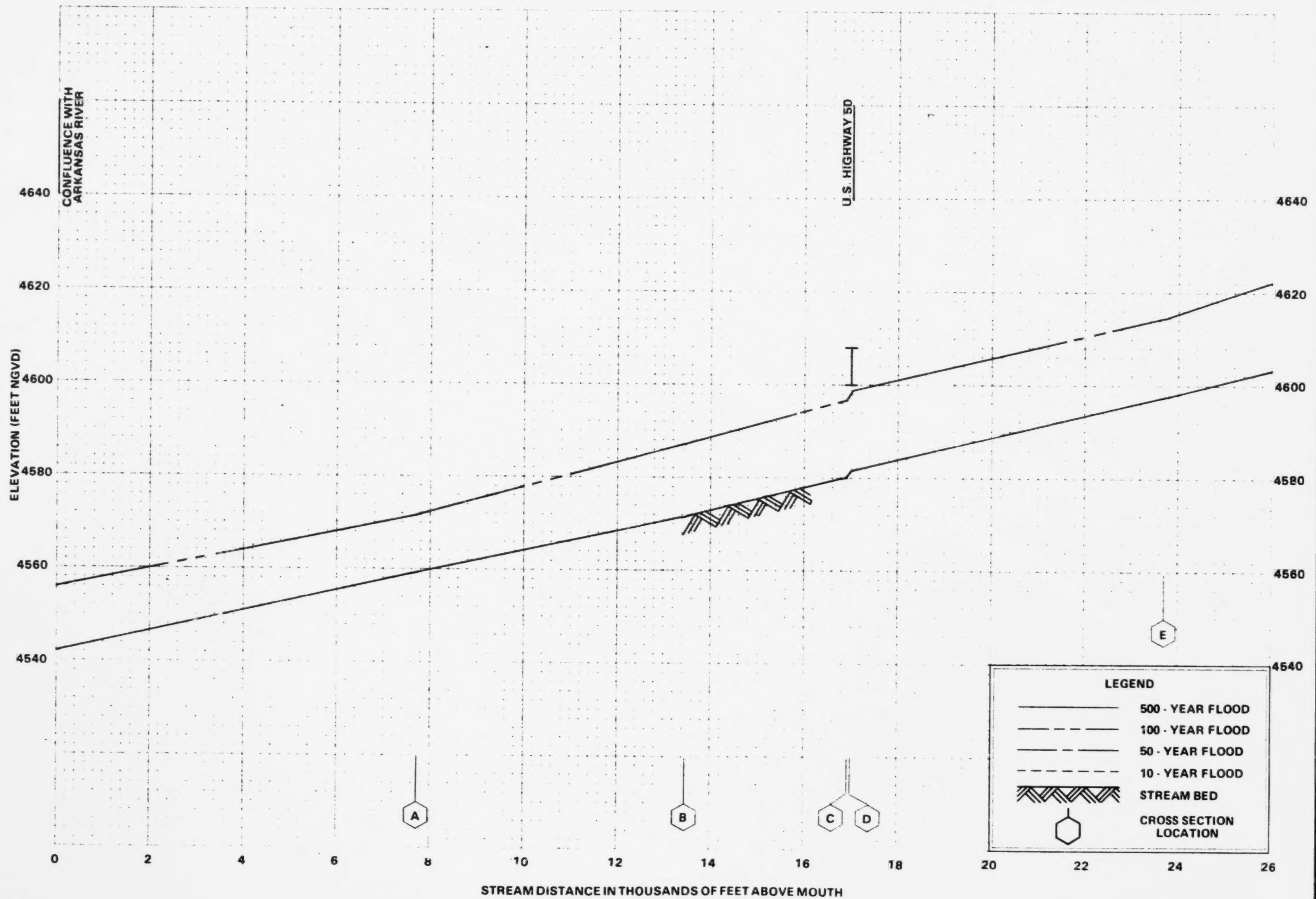
This report either supersedes or is compatible with all previous studies published on streams studied in this report and should be considered authoritative for the purposes of the NFIP.

8.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting the Natural and Technological Hazards Division, FEMA, Denver Federal Center, Building 710, Box 25267, Denver, Colorado 80225-0267.

9.0 BIBLIOGRAPHY AND REFERENCES

1. U.S. Army Corps of Engineers, Albuquerque District, Flood Plain Information Report, St. Charles River, Pueblo County, Colorado, Prepared for the City and County of Pueblo, March 1970.
2. U.S. Army Corps of Engineers, Albuquerque District, Flood Plain Information Report, Fountain Creek, Pueblo County, Colorado, Prepared for the City and County of Pueblo, October 1968.
3. U.S. Army Corps of Engineers, Albuquerque District, Flood Plain Information Report, Salt Creek, Pueblo County, Colorado, Prepared for the City and County of Pueblo, April 1976.
4. U.S. Army Corps of Engineers, Albuquerque District, Flood Plain Information Report, Sixmile Creek, Pueblo County, Colorado, Prepared for the City and County of Pueblo, April 1976.
5. U.S. Army Corps of Engineers, Albuquerque District, Flood Plain Information Report, Goodnight Arroyo, Dry Creek, and Wild Horse-Dry Creek, Pueblo County, Colorado, Prepared for the City and County of Pueblo, April 1969.
6. U.S. Department of Commerce, Bureau of the Census, 1980 Census of Population, Number of Inhabitants, Colorado.
7. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard Boundary Map, Pueblo County, Colorado, January 3, 1978.
8. Correspondence dated September 28, 1987, Initial Response Letter from Community to Mr. John Matticks.
9. U.S. Department of the Interior, Bureau of Reclamation, Arkansas River, Flood Control, Pueblo Dam and Reservoir, 1967.



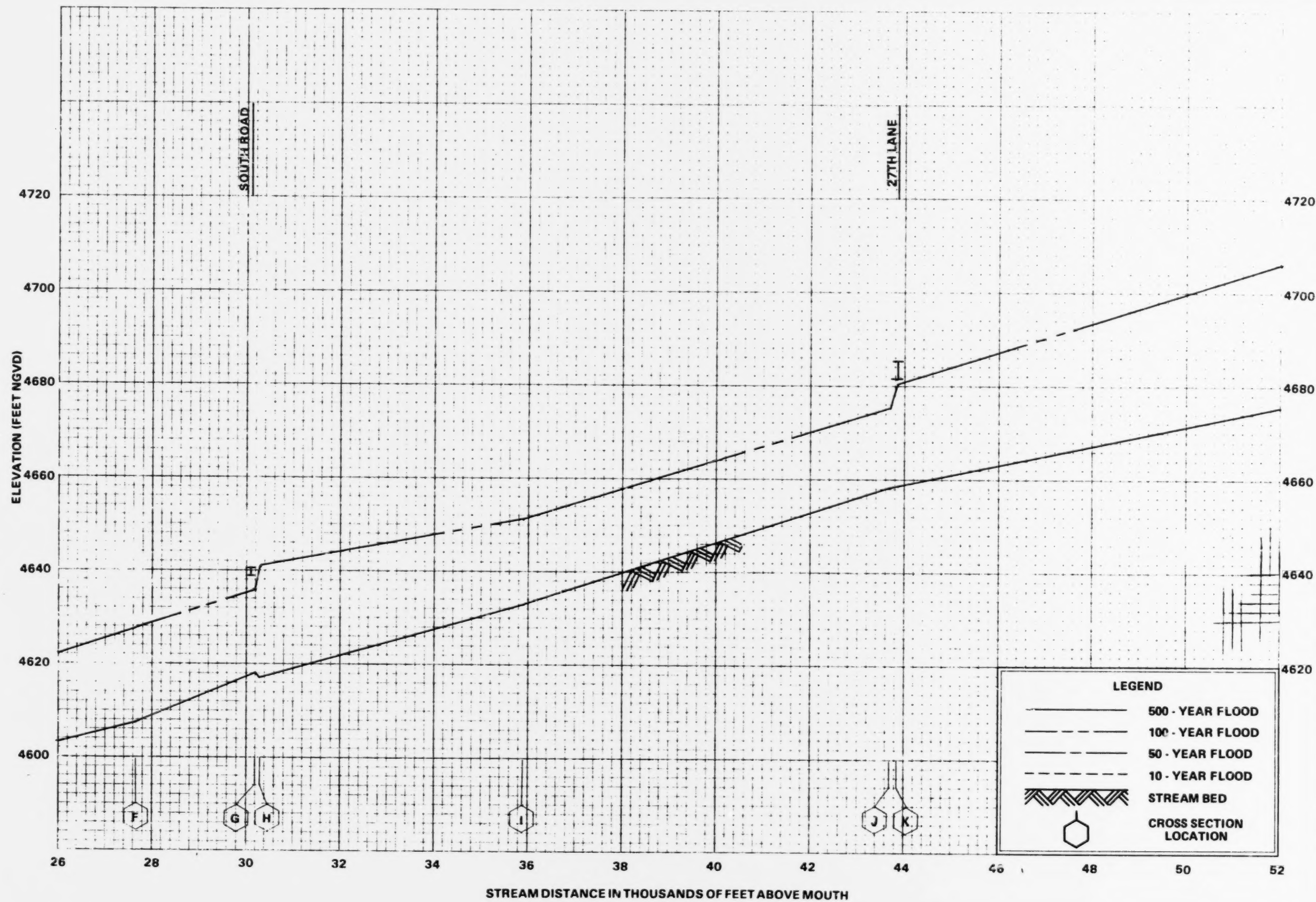
FLOOD PROFILES

ST. CHARLES RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
(UNINCORPORATED AREAS)

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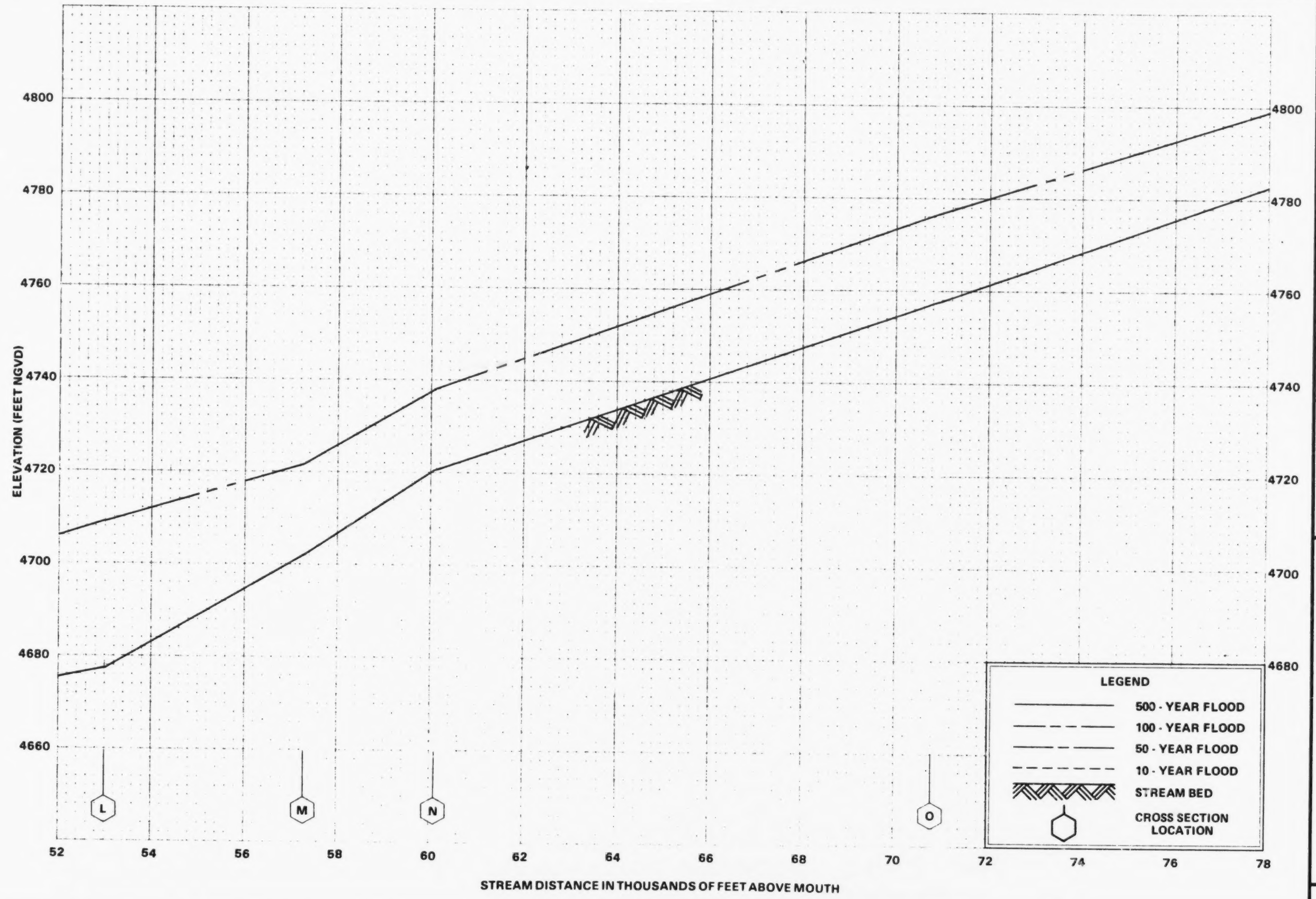
FLOOD PROFILES

ST. CHARLES RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
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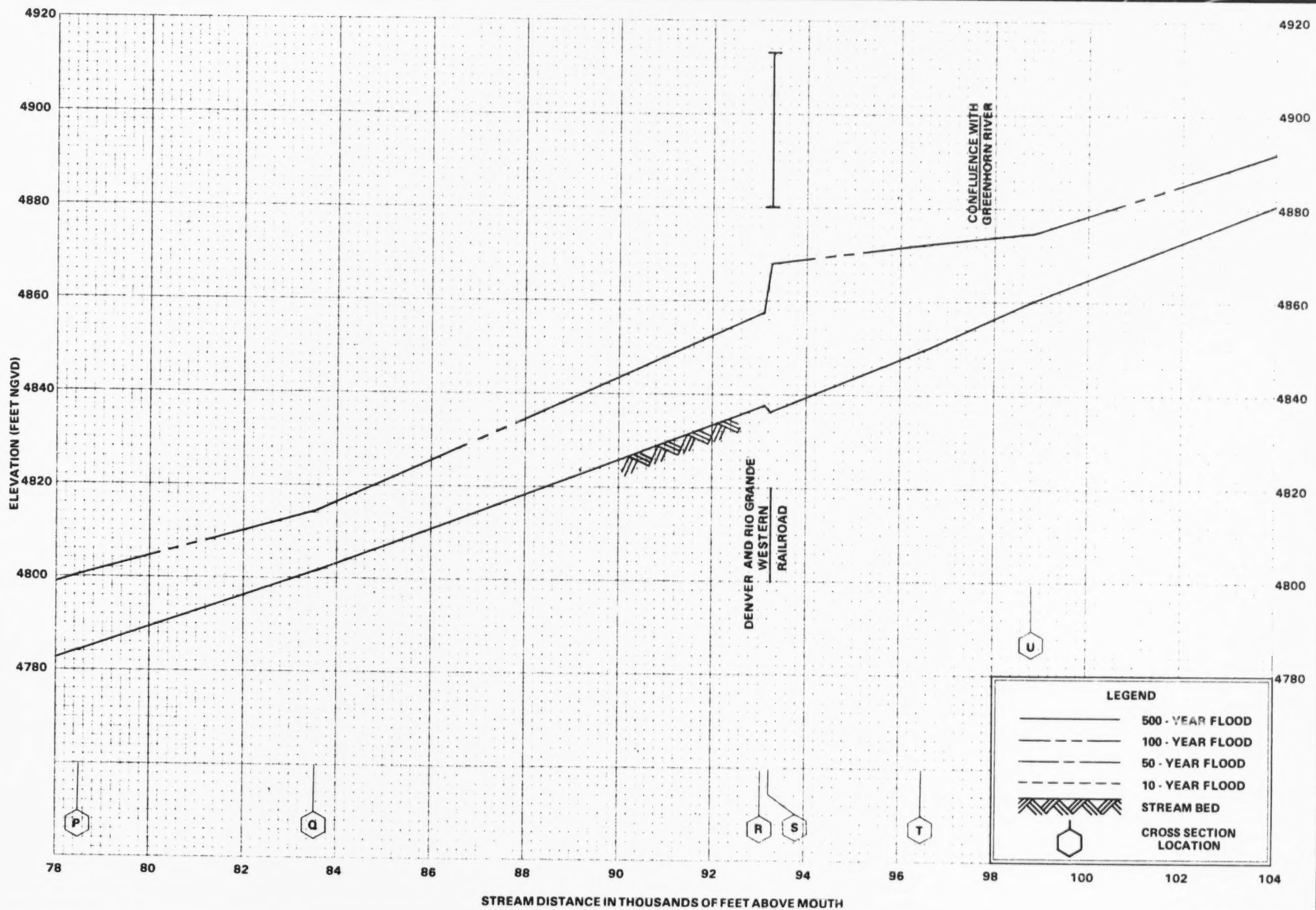
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FLOOD PROFILES
ST. CHARLES RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY
PUEBLO COUNTY, CO
(UNINCORPORATED AREAS)

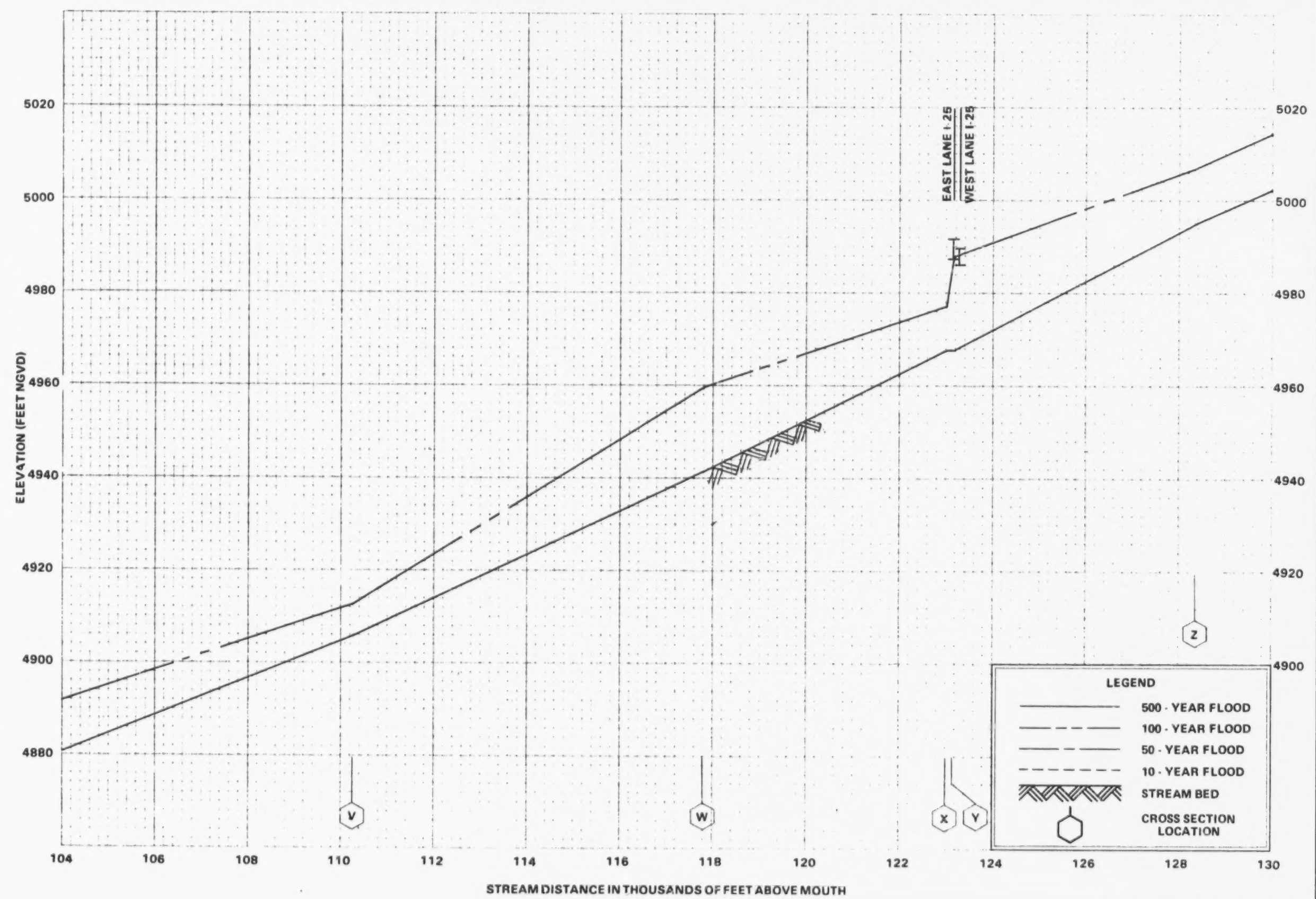
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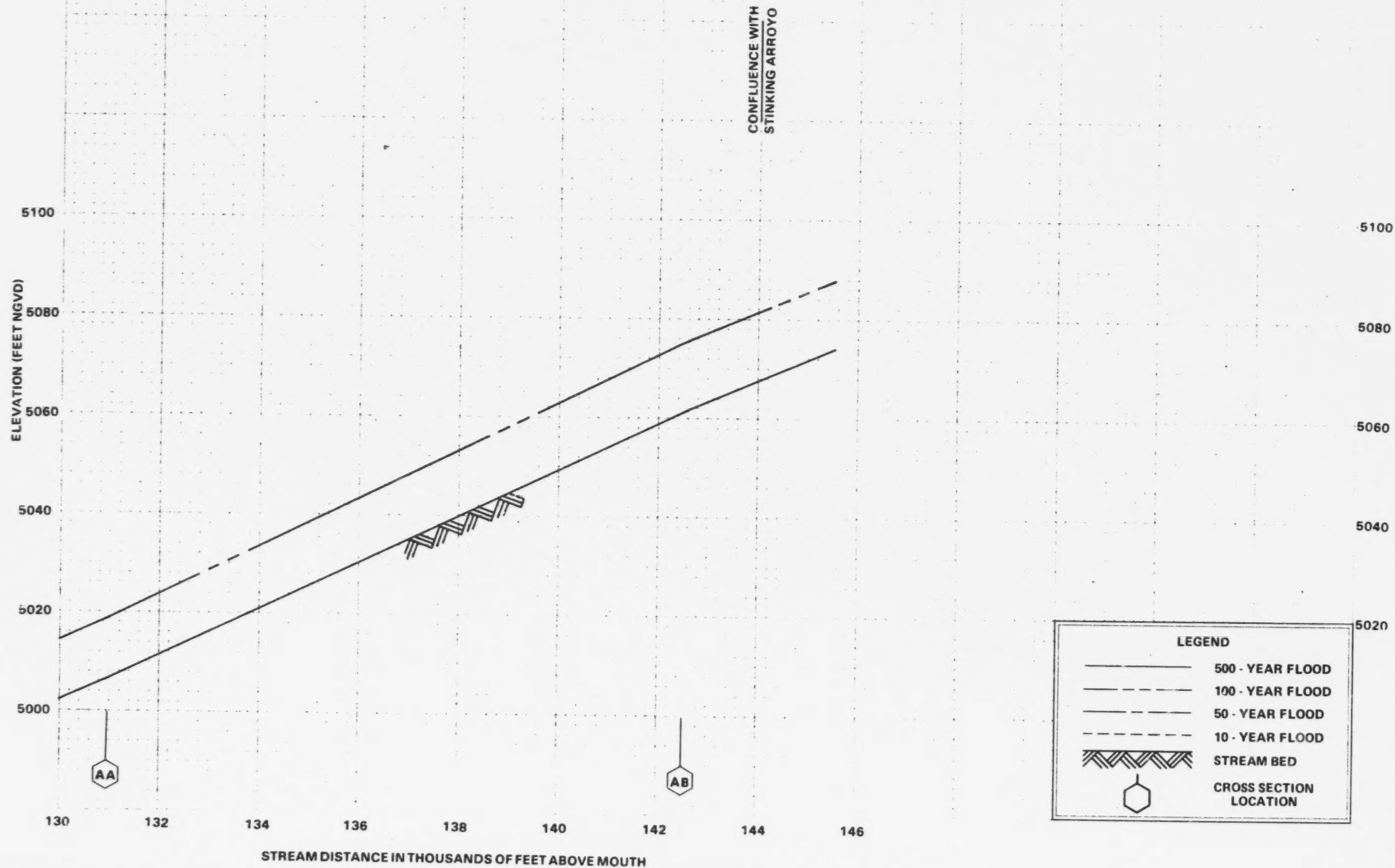
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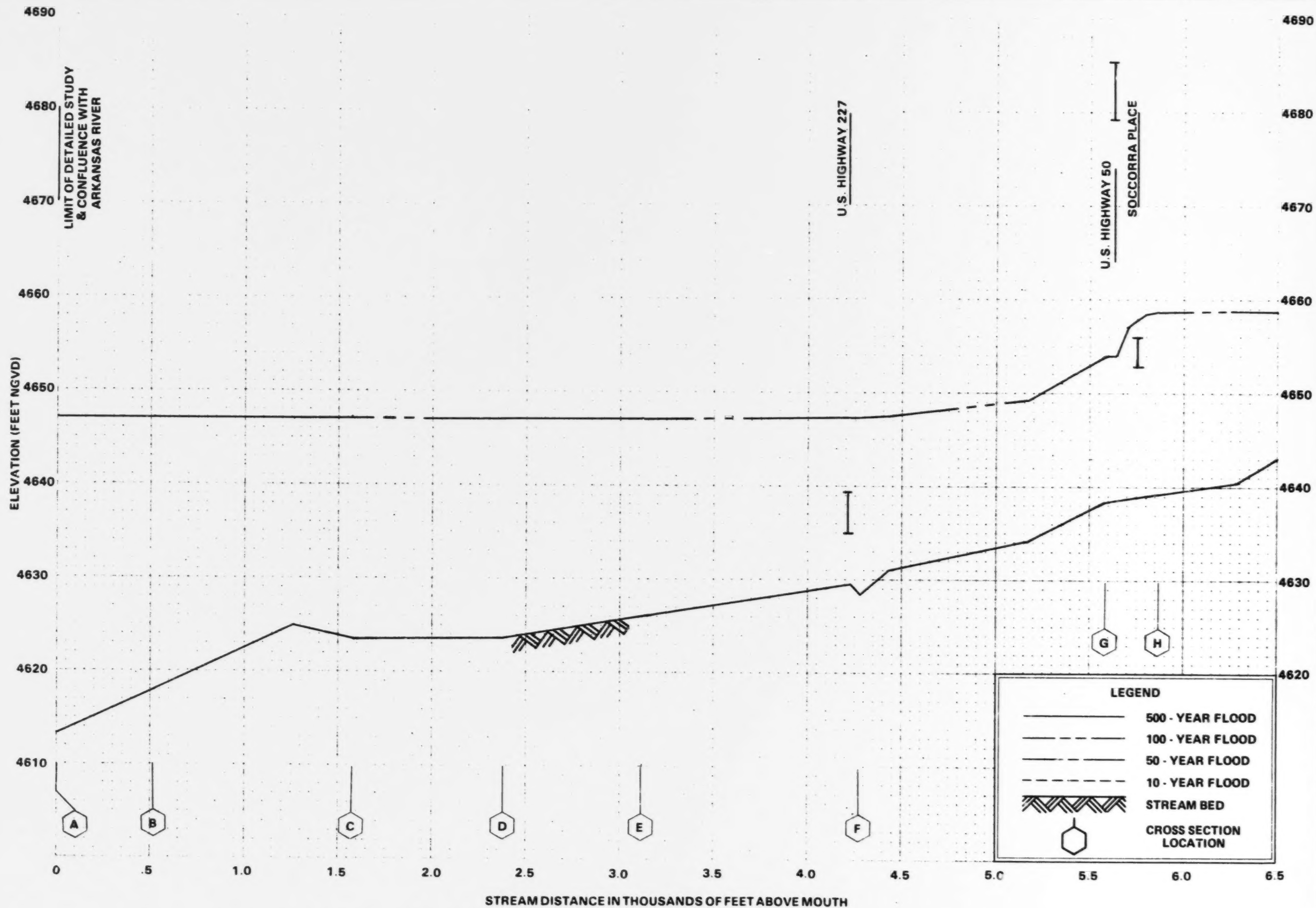
FEDERAL EMERGENCY MANAGEMENT AGENCY
PUEBLO COUNTY, CO
(UNINCORPORATED AREAS)

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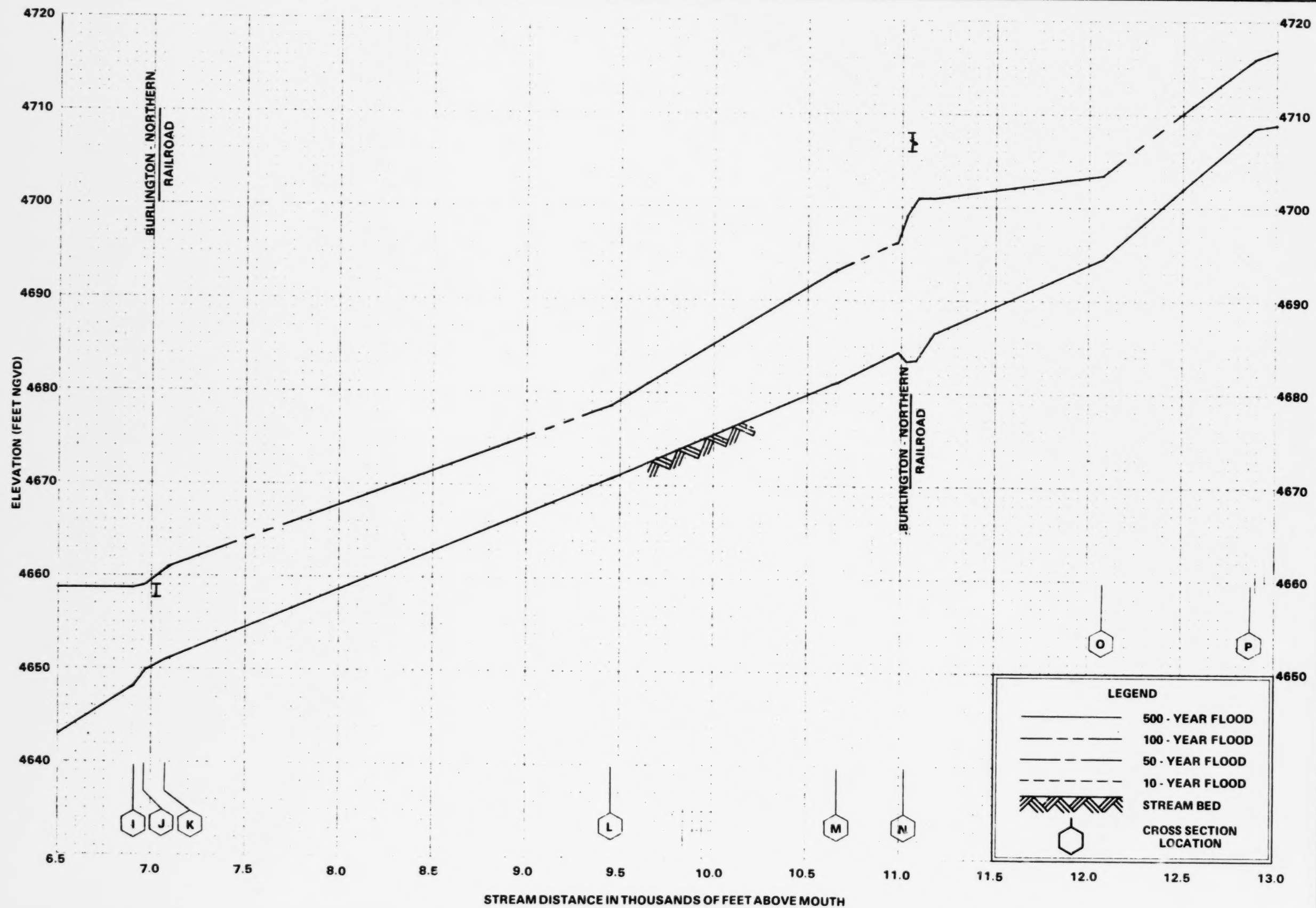
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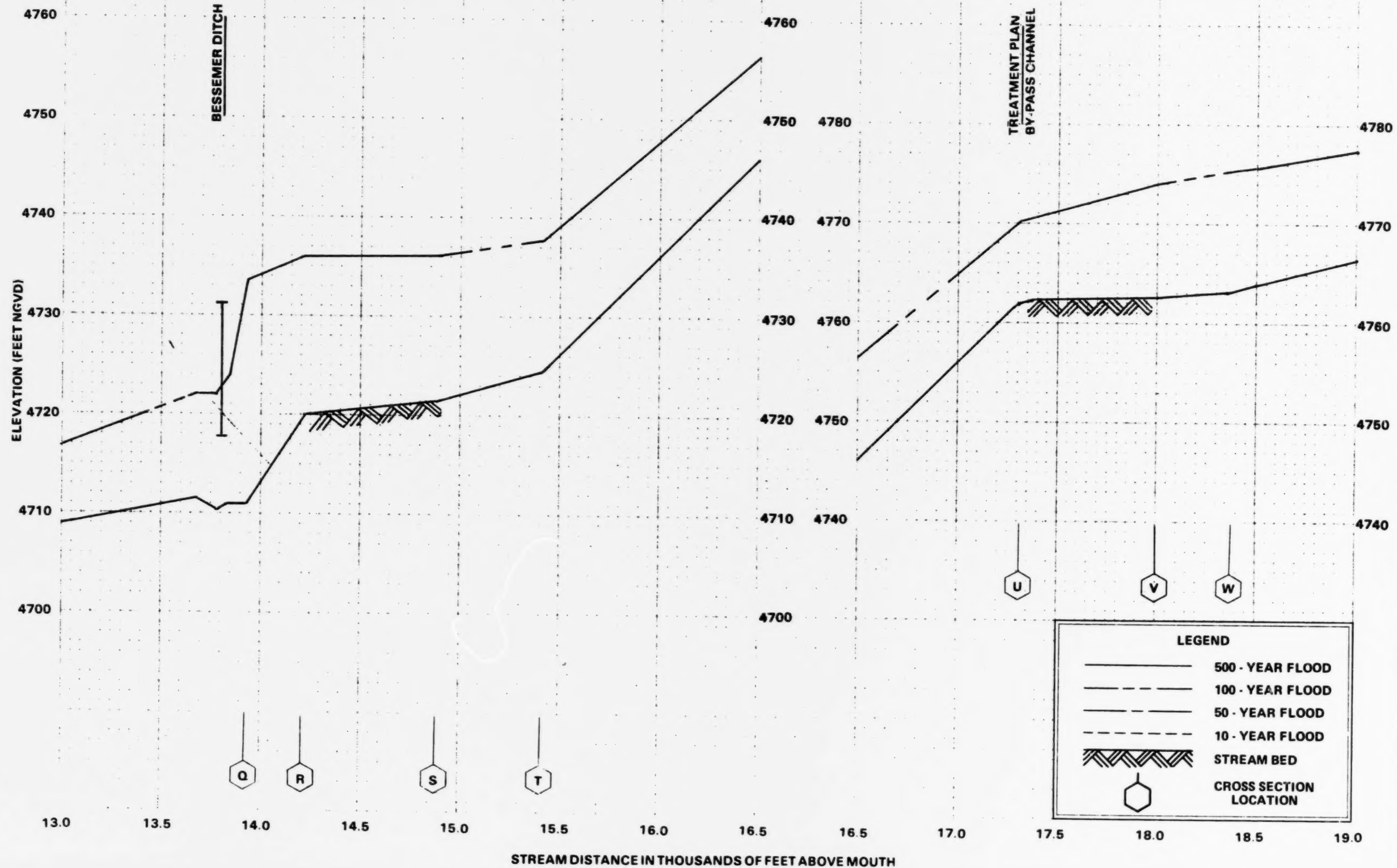
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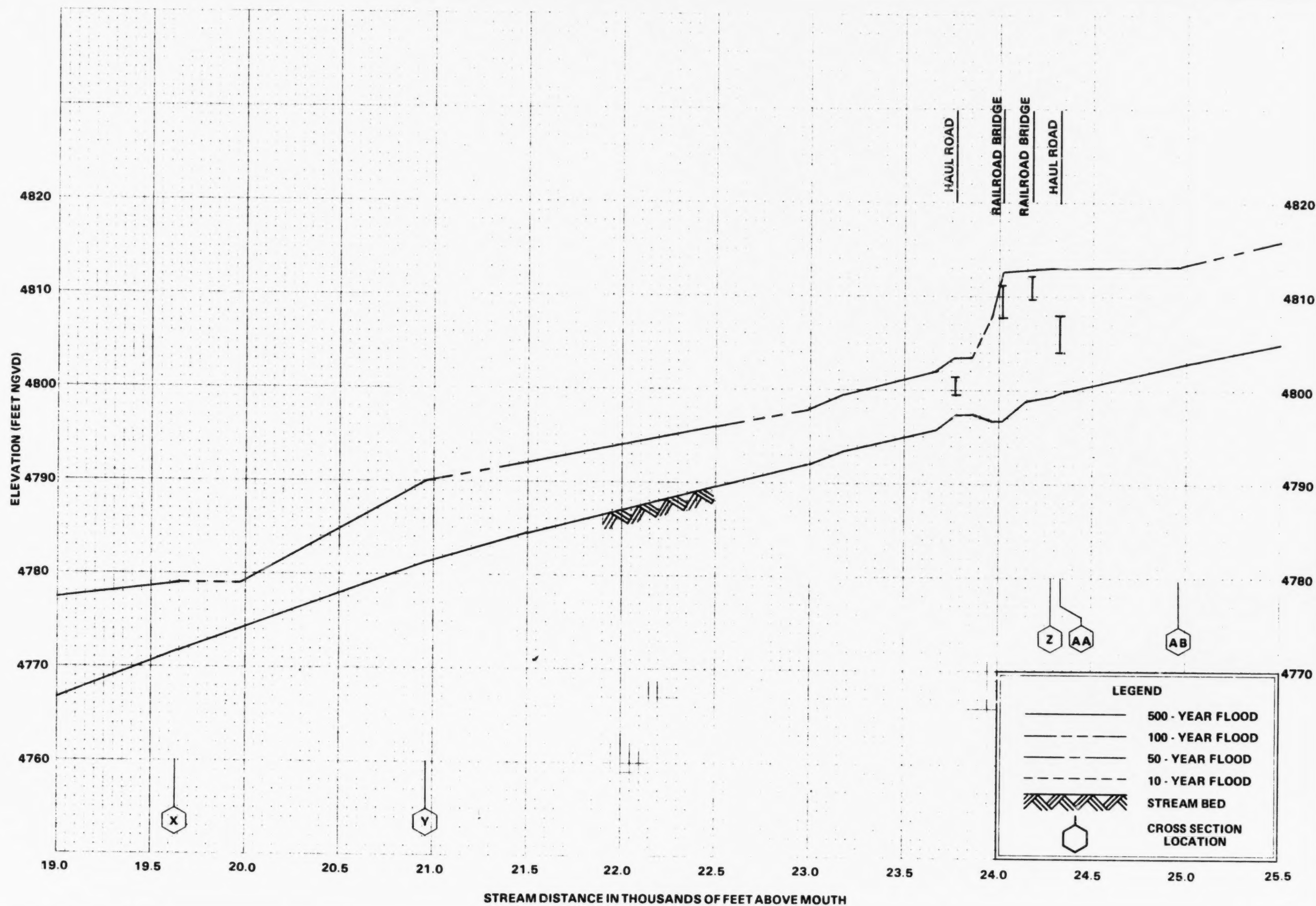
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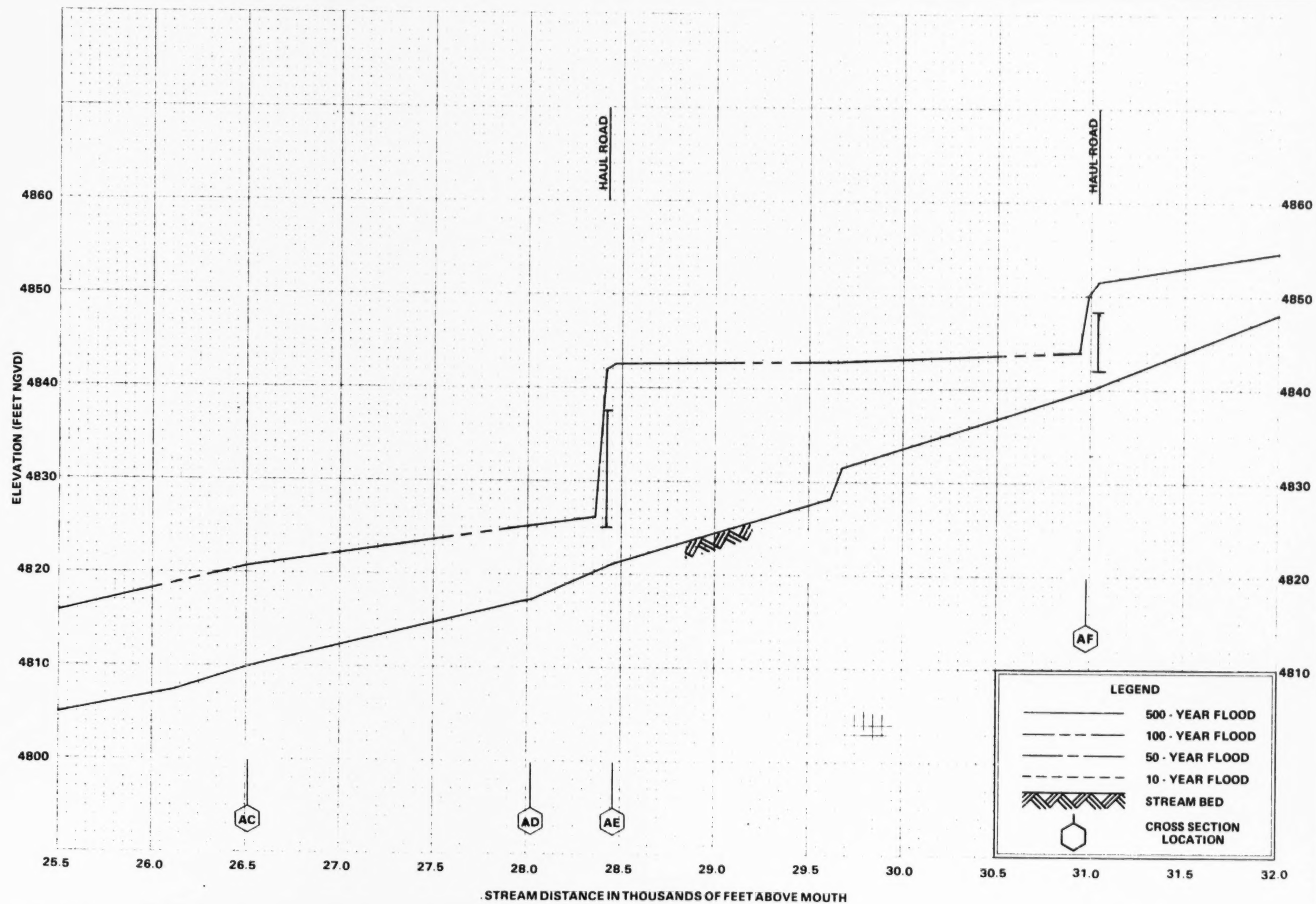
PUEBLO COUNTY, CO
(UNINCORPORATED AREAS)

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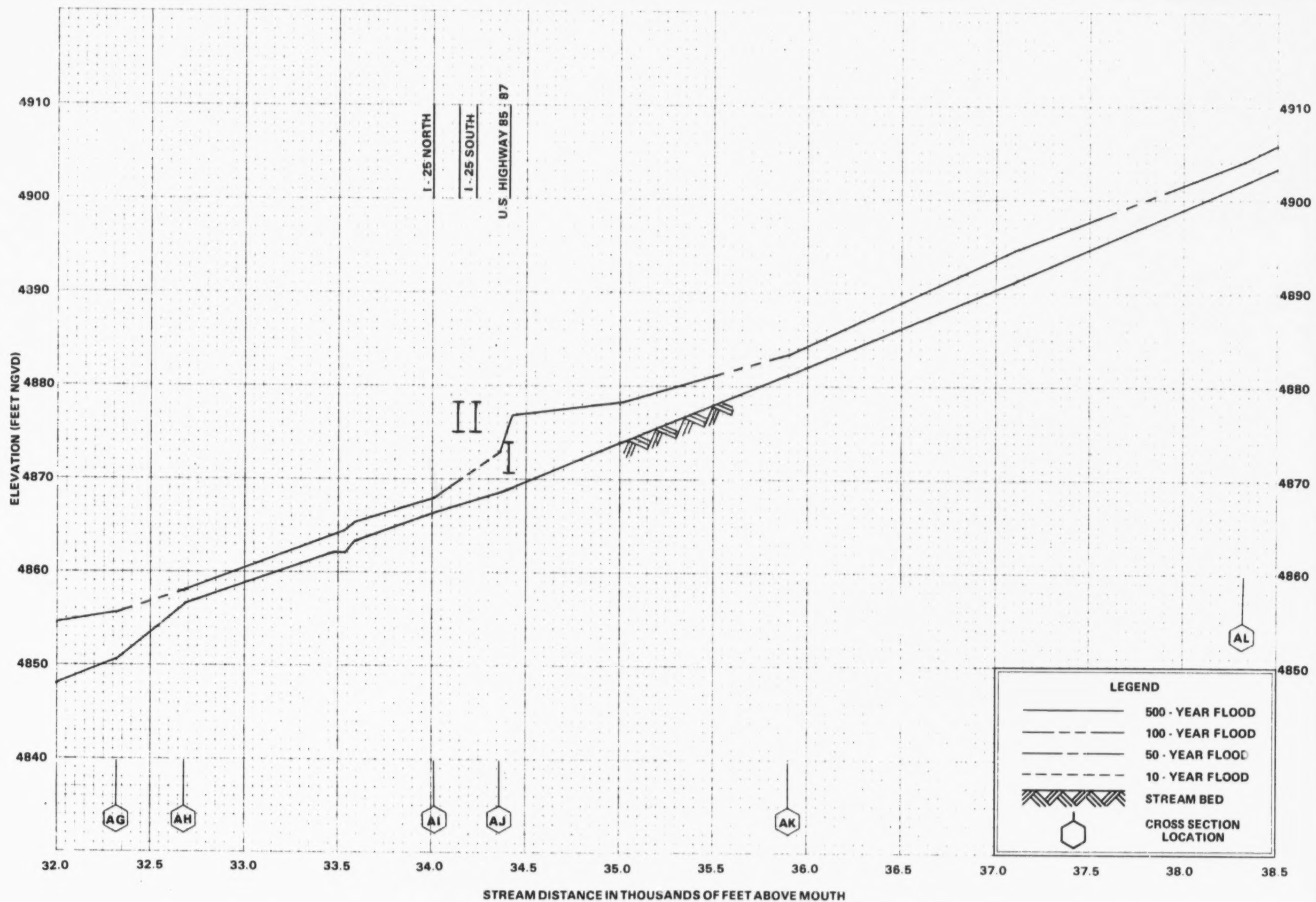
FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
(UNINCORPORATED AREAS)

FLOOD PROFILES

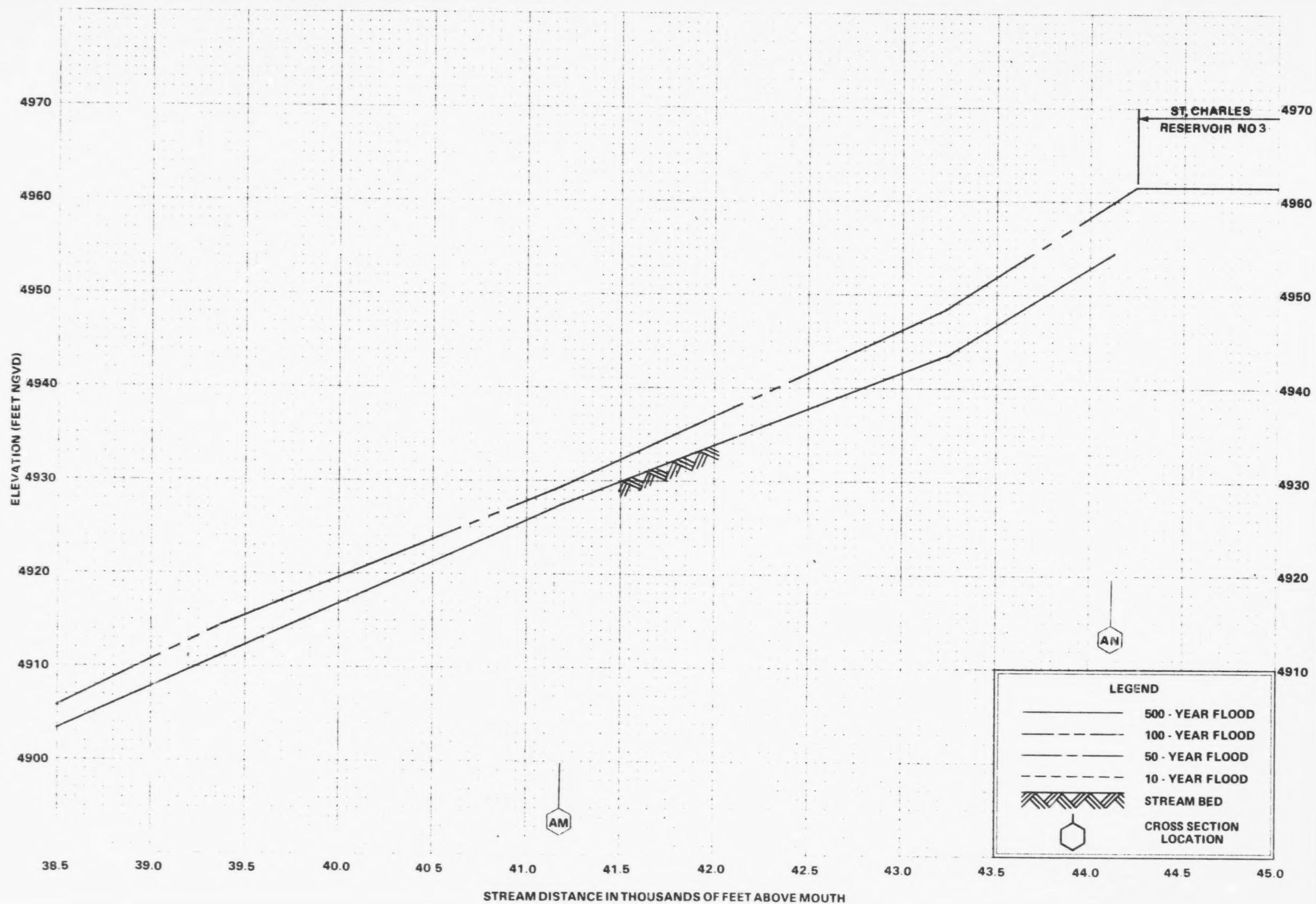
SALT CREEK

11P



FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
(UNINCORPORATED AREAS)

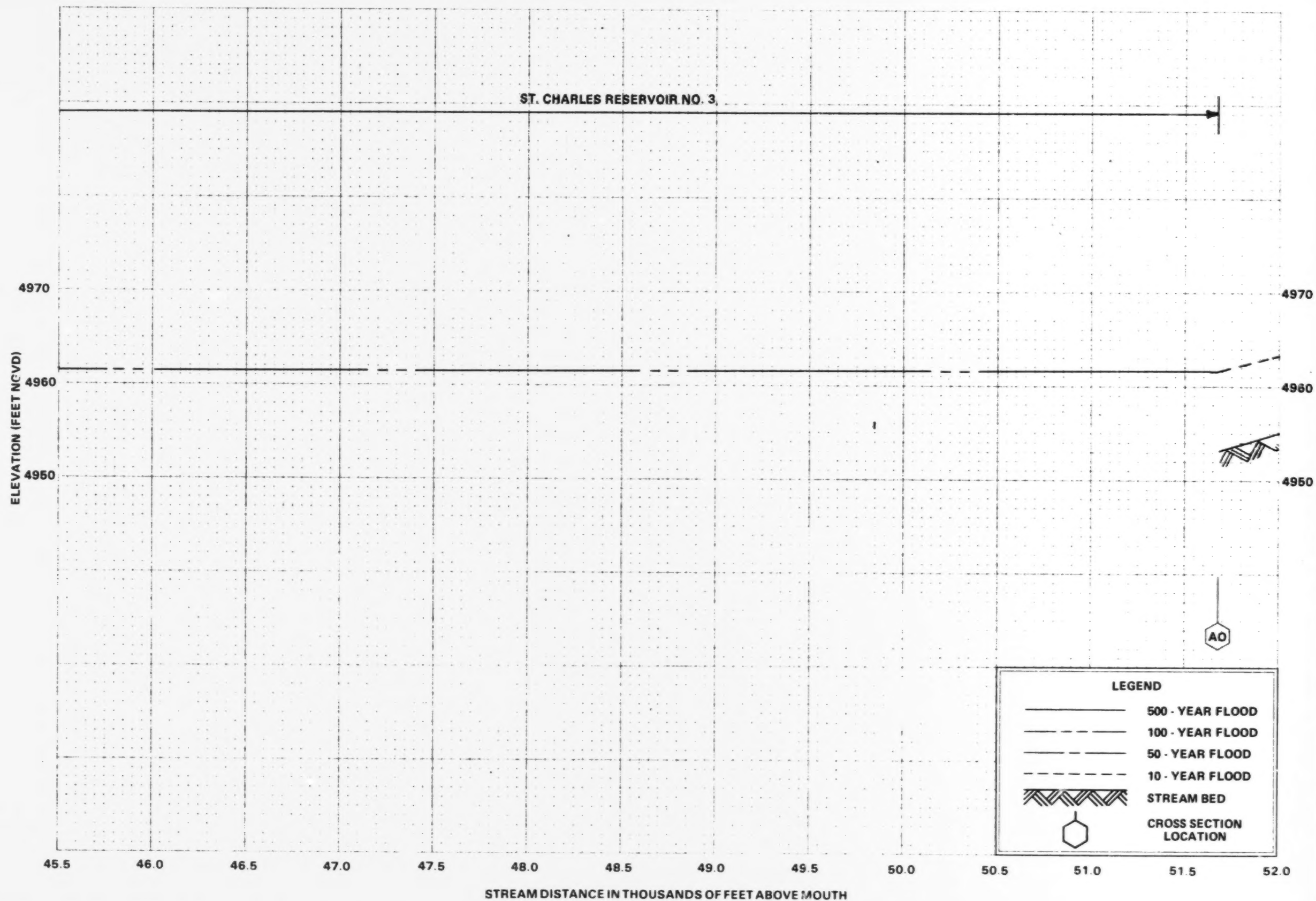


FLOOD PROFILES

SALT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
(UNINCORPORATED AREAS)



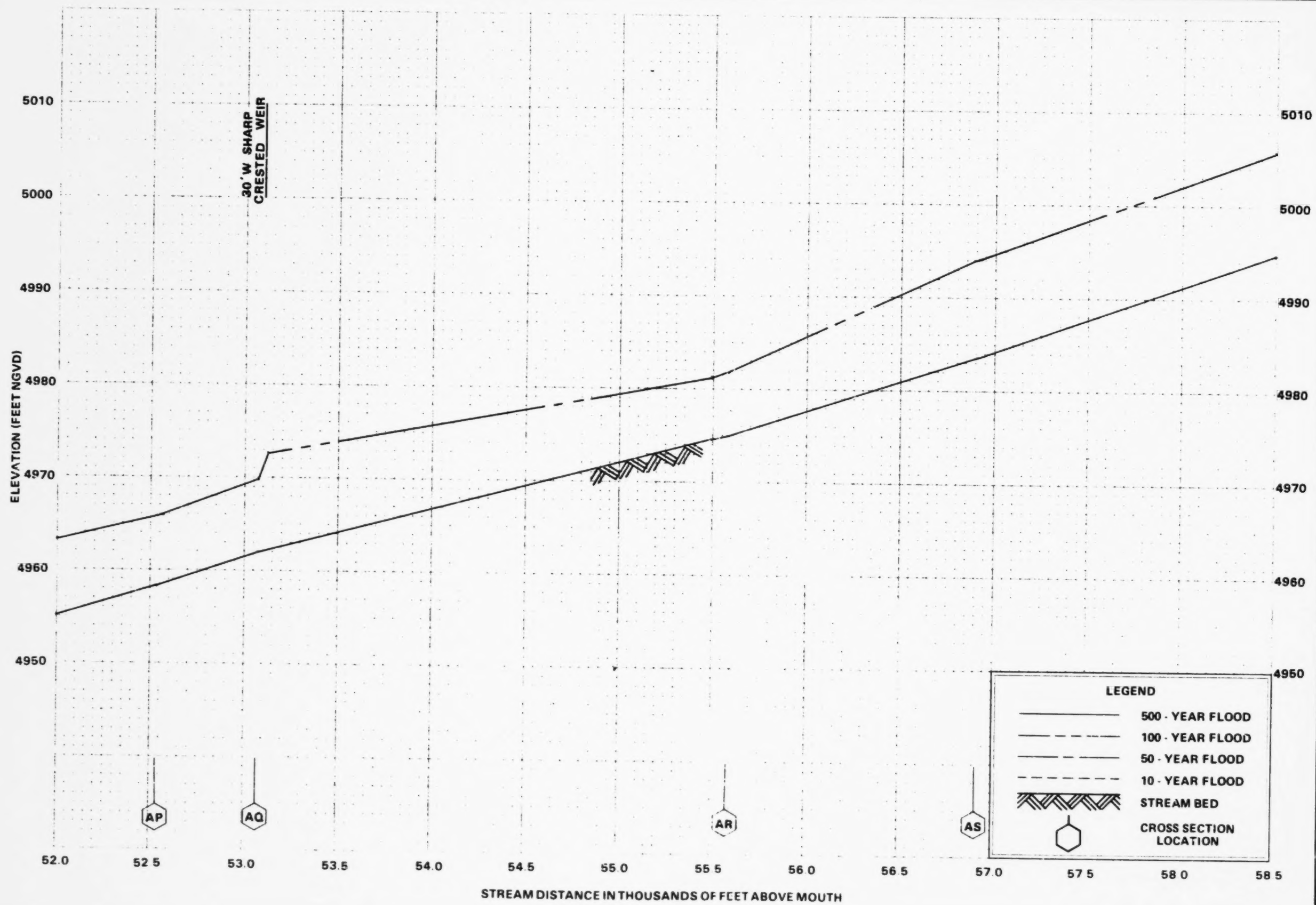
FLOOD PROFILES

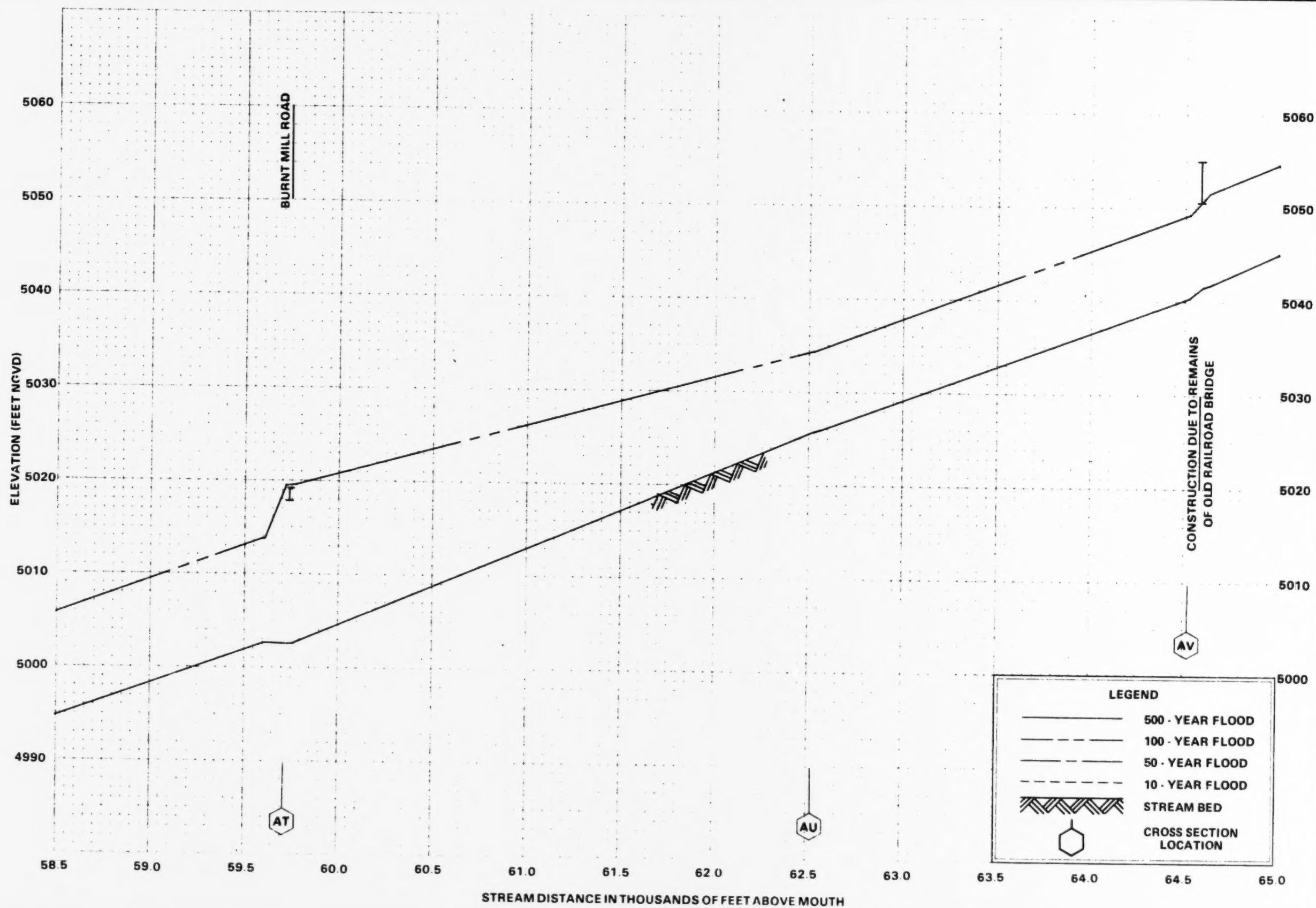
SALT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
(UNINCORPORATED AREAS)

14P





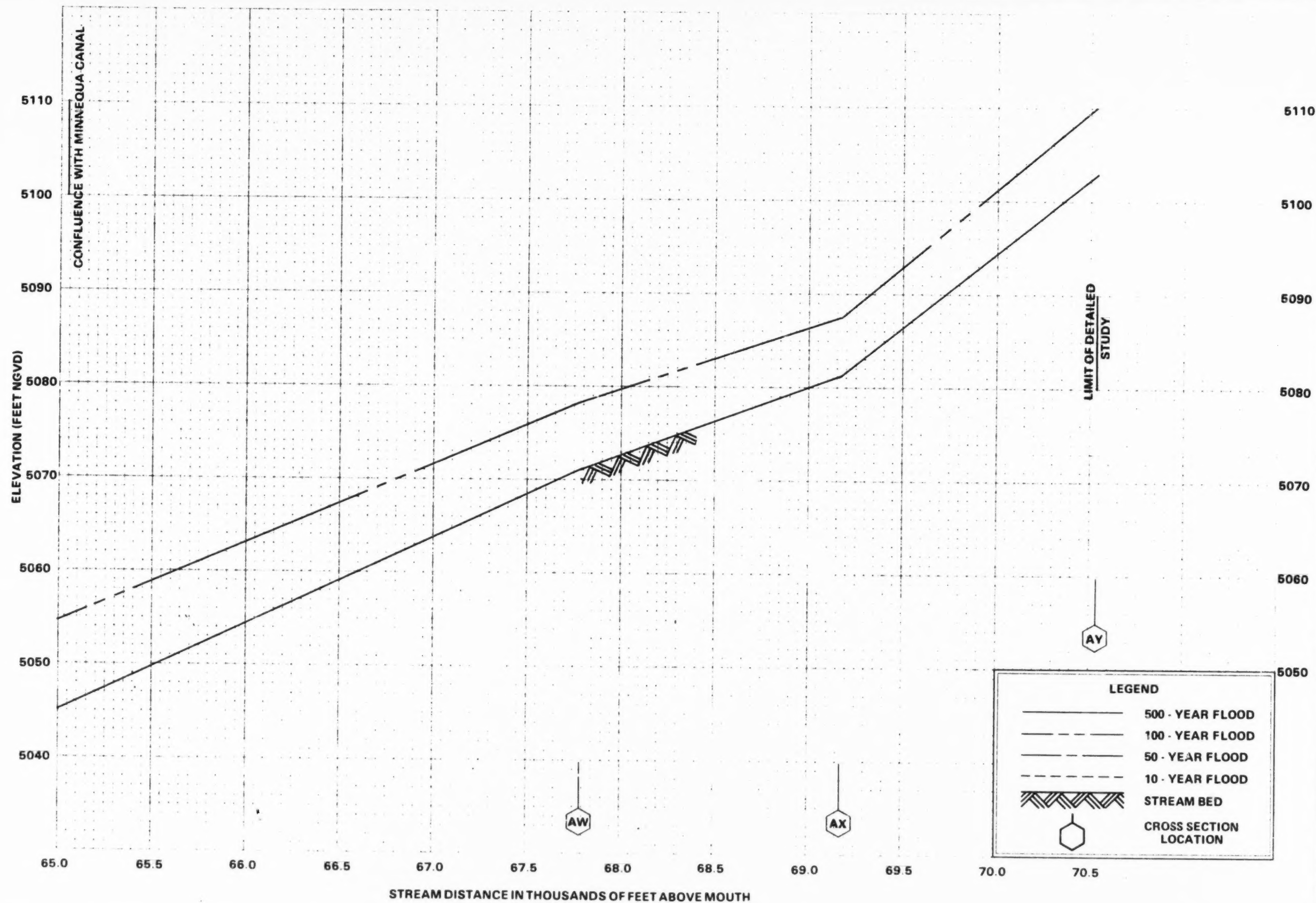
FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
(UNINCORPORATED AREAS)

FLOOD PROFILES

SALT CREEK

16P



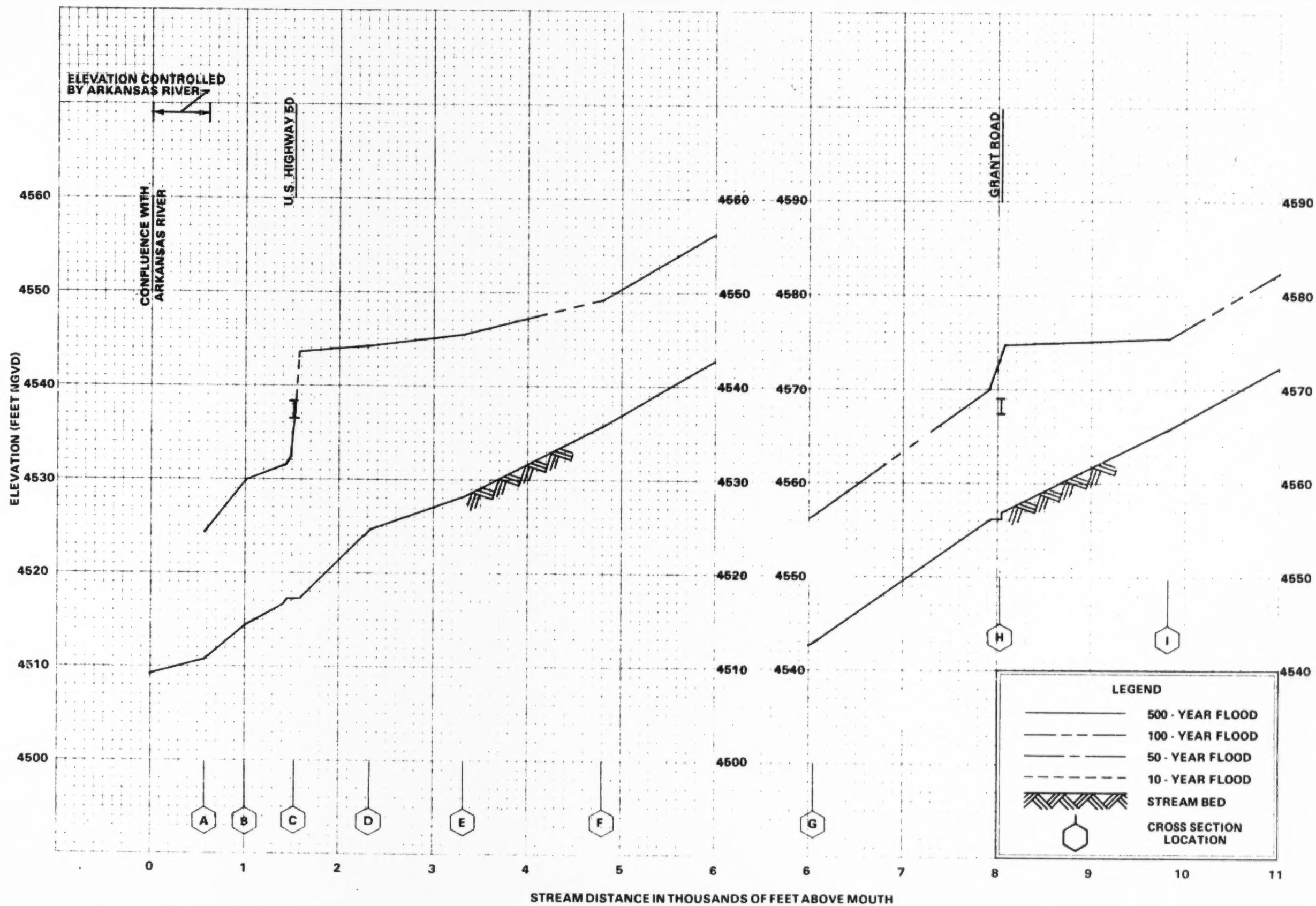
FLOOD PROFILES

SALT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
(UNINCORPORATED AREAS)

17P



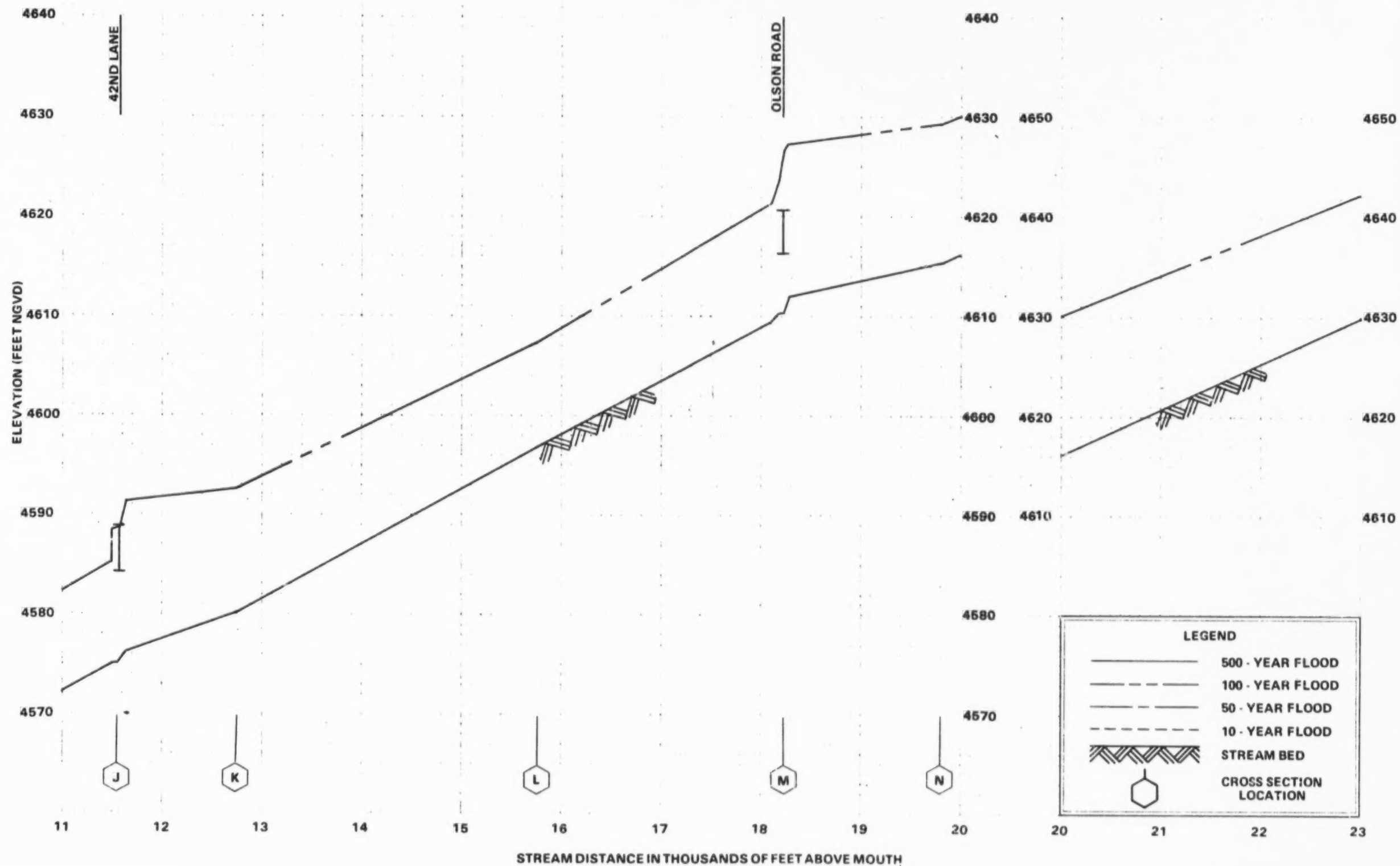
FLOOD PROFILES

SIXMILE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
(UNINCORPORATED AREAS)

18P



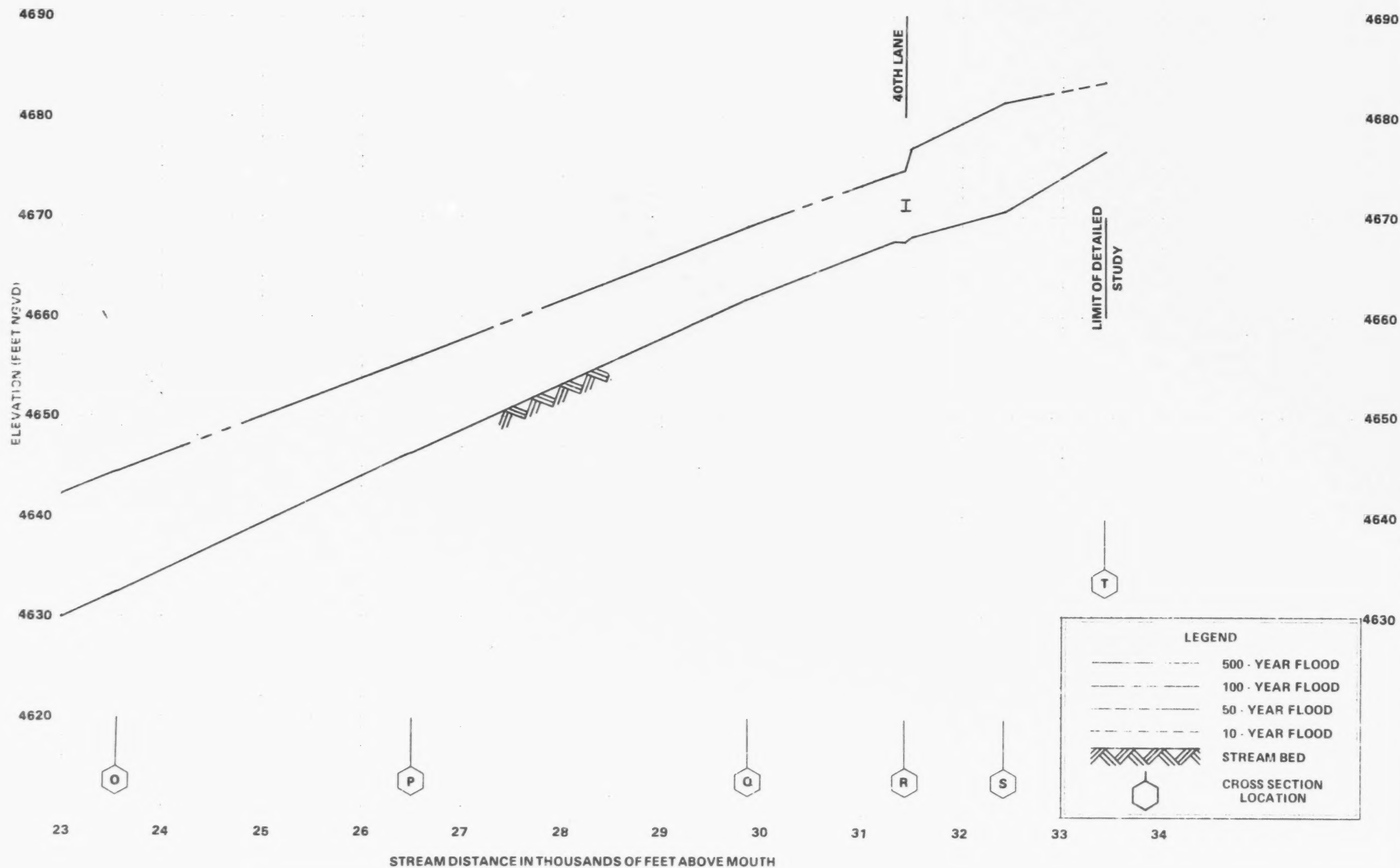
FLOOD PROFILES

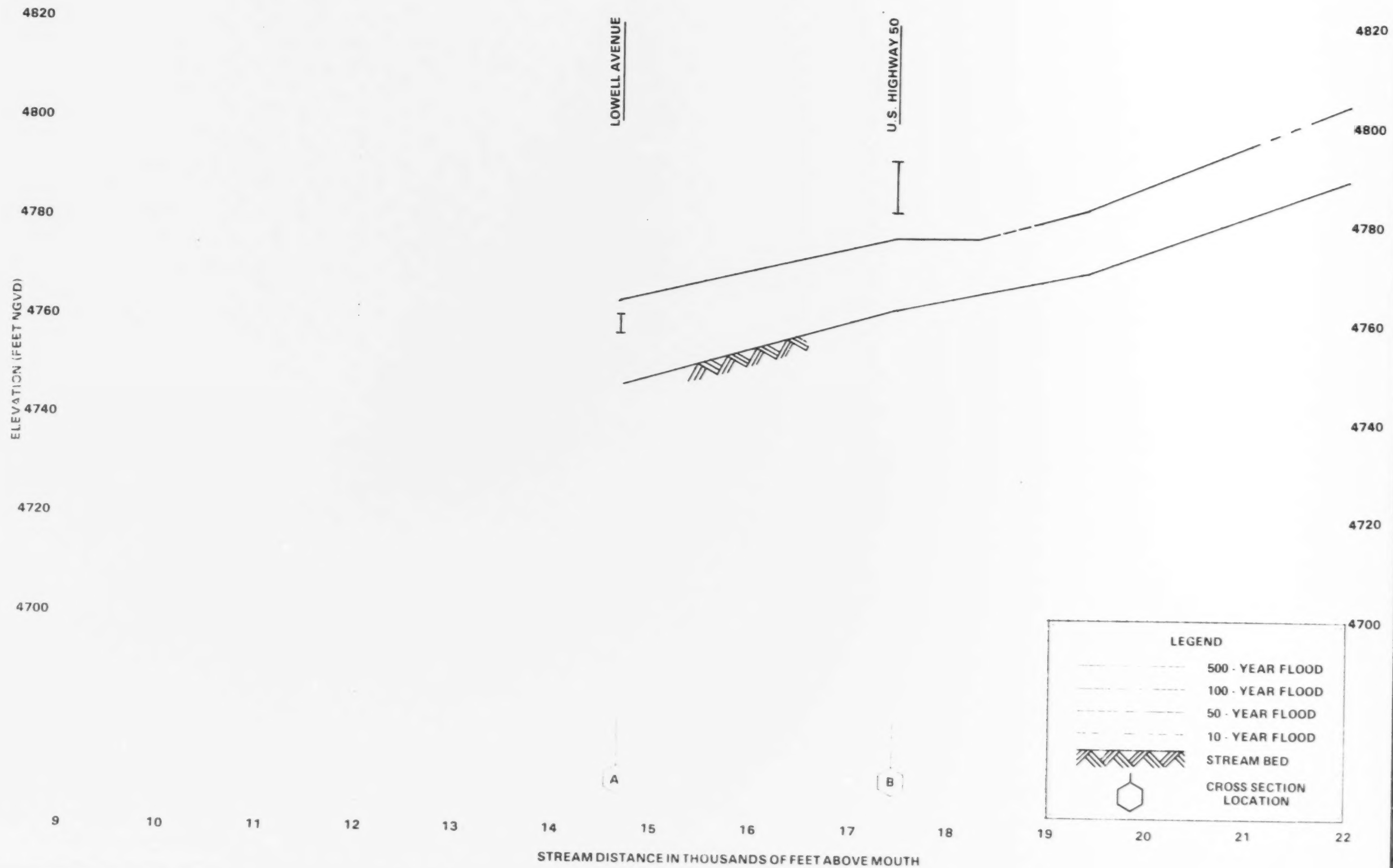
SIXMILE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
(UNINCORPORATED AREAS)

20P





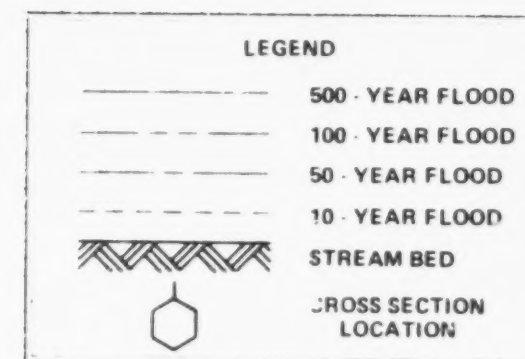
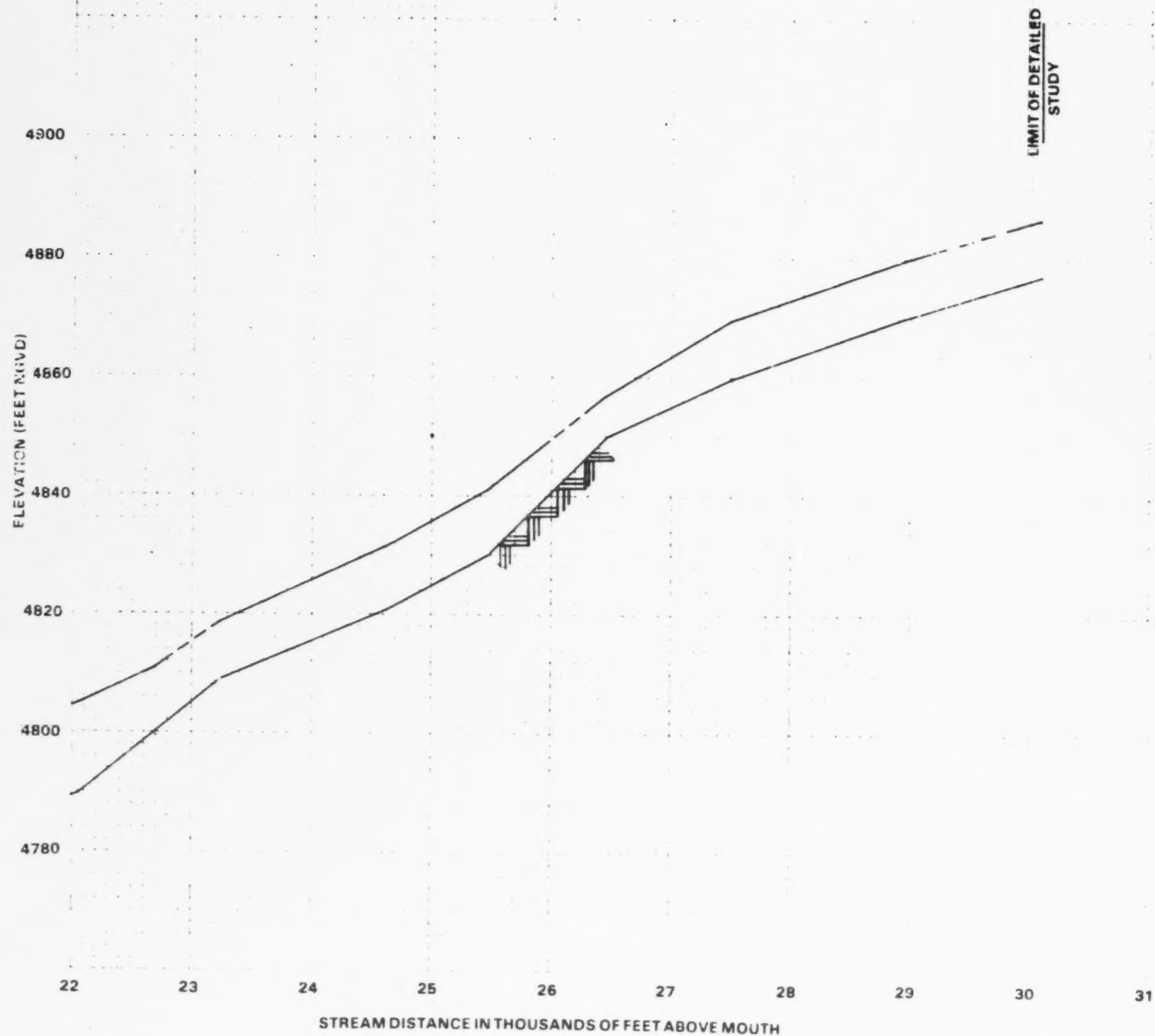
FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
(UNINCORPORATED AREAS)

FLOOD PROFILES

WILD HORSE - DRY CREEK

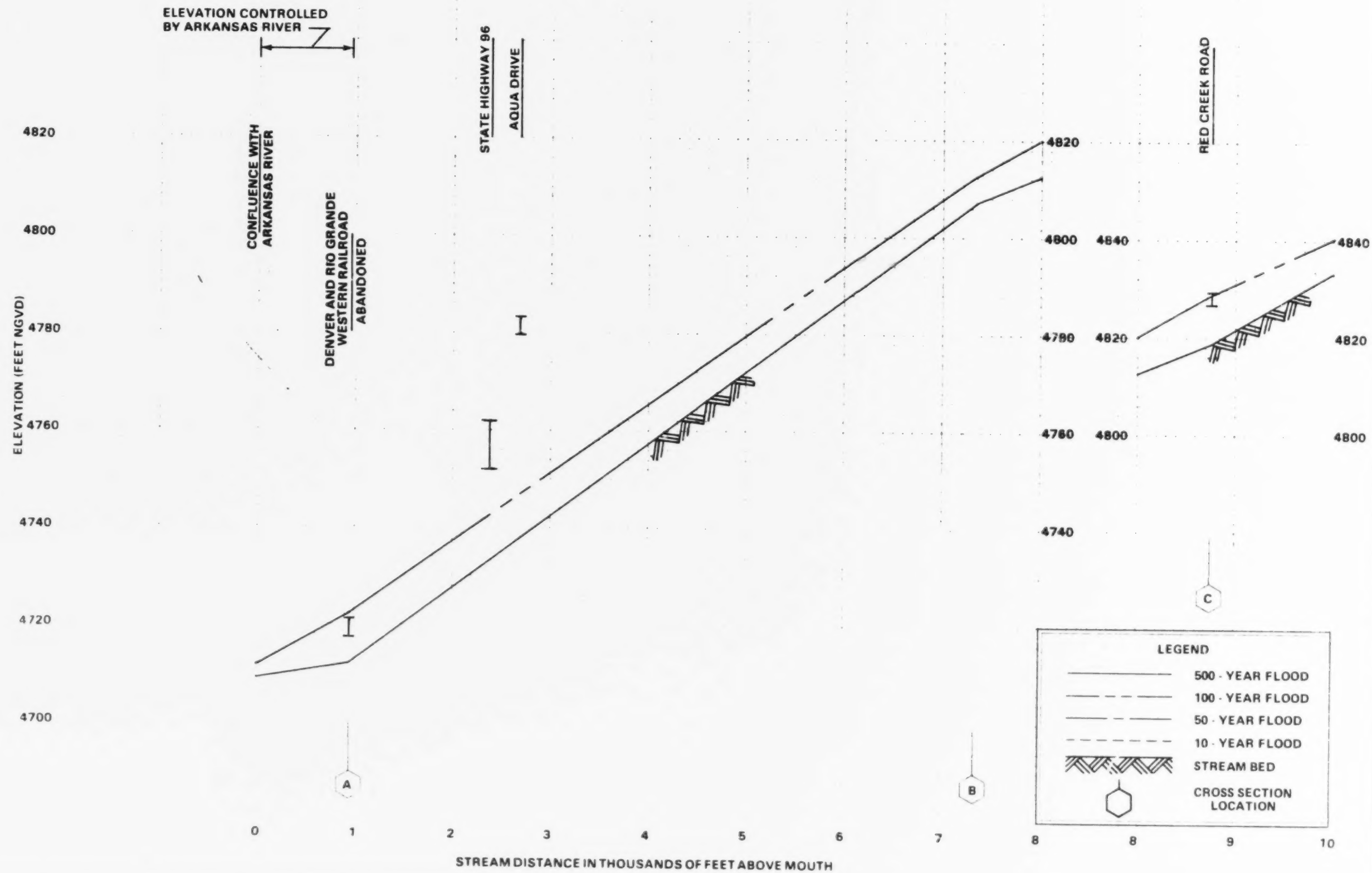
21P



FLOOD PROFILES
WILD HORSE - DRY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY
PUEBLO COUNTY, CO
(UNINCORPORATED AREAS)

22P



FLOOD PROFILES

GOODNIGHT ARROYO

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
(UNINCORPORATED AREAS)

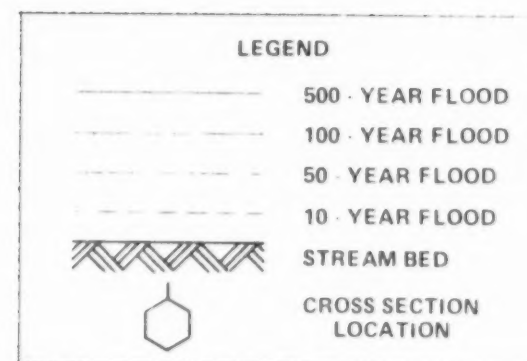
23P

ELEVATION (FEET NGVD)
4880
4860
4840
4820

10 11 12 13 14
STREAM DISTANCE IN THOUSANDS OF FEET ABOVE MOUTH



LIMIT OF DETAILED
STUDY

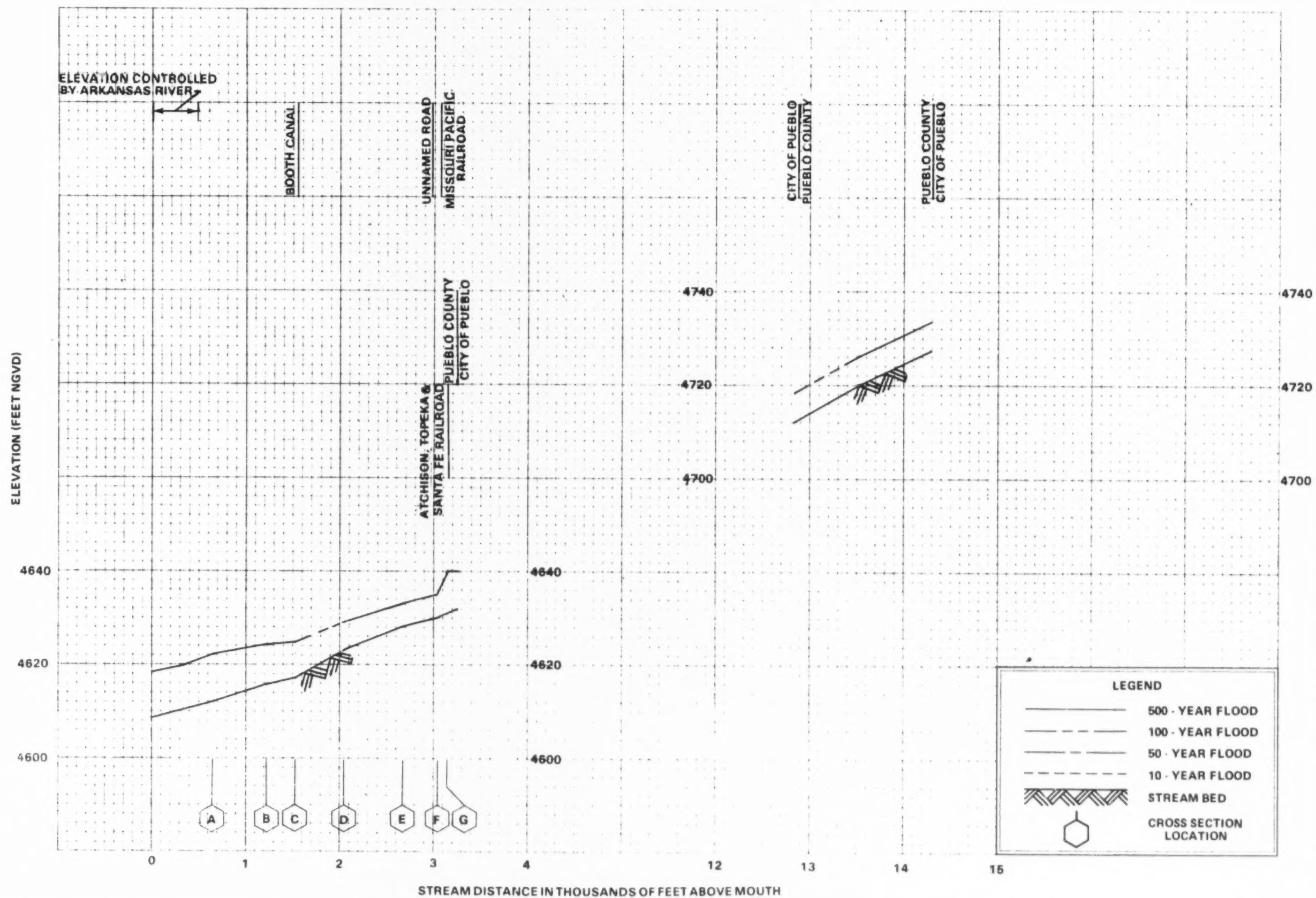


4880
4860
4840
4820

FLOOD PROFILES
GOODNIGHT ARROYO

FEDERAL EMERGENCY MANAGEMENT AGENCY
PUEBLO COUNTY, CO
(UNINCORPORATED AREAS)

24P



FLOOD PROFILES

DRY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

PUEBLO COUNTY, CO
(UNINCORPORATED AREAS)

25P